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SACLAN

M. S. BEELER

UNIVERSITY OF CALIFORNIA, BERKELEY

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1. A circle with radius of forty miles drawn from a center near the confluence of the Sacramento and San Joaquin rivers includes territory once occupied by speakers of each of the five Penutian stocks of California. After the beginning of the nineteenth century this region was repeatedly visited by expeditions from San Francisco in order to obtain converts for the mission there, and during the 1840's this system of bays, estuaries, and rivers became the main avenue of communication between the coast and the gold mines of the Sierra Nevada to the east. As a result there were few surviving aborigines in this area when the native languages and cultures began to be intensively studied toward the close of that century and at the beginning of the present one. A considerable measure of uncertainty now prevails about the limits of the territories occupied at the time of discovery by speakers of Sierra Miwok, Yokuts, and Costanoan dialects, particularly in the area around Stockton and west to Mt. Diablo.

The names of Indians listed in the mission records regularly are accompanied by the name of the village from which the neophytes had been brought. More than a hundred such village names are known for the San Francisco mission, but in the lack of other information it is usually impossible to determine their sites with any degree of precision. One such name that appears with great frequency in these lists and which in addition is often mentioned by travelers during the mission period is SACLAN (also written SOCLAN, SACALAN, CHACLAN, and ZACLOM [?]); and from the references to it it has been guessed that it was situated, vaguely, in a general northeasterly direction from San Francisco. Accordingly the name was appropriated by Kroeber,[1] following Bancroft,[2] as the designation of the most northerly dialect of Costanoan, placed by him in northern Alameda and in northern and eastern Contra Costa counties, territory in which lie the present cities of Oakland, Berkeley, Richmond, and Martinez. But there was no linguistic evidence in support of this assignment; no vocabularies were known from the long stretch of country along the eastern shores of San Francisco Bay (north of San Lorenzo) and the southern shores of Carquinez Strait and Suisun Bay.

Some evidence bearing on this problem has recently come to light. Only two of the some sixty or seventy Franciscan missionaries to California during the period from 1769 to ca. 1840 had more than a cursory interest in the languages of the Indians under their charge: Buenaventura Sitjar, whose phrase book of the Migueleño dialect of Salinan was published in 1861, and Felipe Arroyo de la Cuesta (1780–1840), stationed at Mission San Juan Bautista from 1808 to 1833 and whose grammar of the Mutsun language of that mission also appeared in 1861. His recordings of several other California idioms

[1] A. L. Kroeber, Handbook of the Indians of California, 1925, p. 463.

[2] H. H. Bancroft, History of California, vol. 1, (1884). 709, n. 28.

exist in manuscript, but it is only his treatment of Esselen that has been published.[3] A long manuscript[4] of his in the Bancroft Library of the University of California, to be published in the near future by Robert F. Heizer, contains, in addition to extensive material on several Chumash dialects and on Salinan, brief vocabularies of five languages taken down during a visit to San Francisco in January, 1821.

All of these languages were apparently spoken in the area of San Pablo Bay, the straits, and Suisun Bay to the east. They are, in Arroyo's orthography, Huimen (= southern Coast Miwok of Marin county), Juichun (= East Bay Costanoan, in a form not very different from the hitherto known dialects of that region, those of San Lorenzo and Mission San Jose; a tentative location is north of Richmond, near the present town of San Pablo), Karkin (= apparently near the straits of that name; this is a divergent form of northern Costanoan, and its discovery confirms Kroeber's guesses[5] on the character of the speech in that area); Suisun (= southern Wintun, on the northern shores of the bay of that name), and Saclan. The linguistic material afforded by the following vocabulary will be combined with evidence of other kinds in an effort to delimit the area once occupied by the Saclan Indians.

It commences with the following statement: "Voces que me dió en la de N(uestro) P(adre) . . . rispo Johuoesia dia 17 Enero de 1824 [sic, should be 1821] de la Rancheria, é Idioma Saclan."

luthri	*one*
ohuothro	*two*
tolocothro	*three*
oisa	*four*
supa	*five*
jesmuhi	*six*
keneheke	*seven*
osocasi	*eight*
telekaka	*nine*
usiusius	*ten*
teyekisa (barba)	*beard*
saccas (canoa)	*boat*
tanuca (arco)	*bow*
juyesi (barbas)	*chin*
liselise (frio)	*cold*
en (ven)	*come!*
lupulup (coronilla)	*crown of head*
tune (hija)	*daughter*
alaco (orejas)	*ears*
sette[5a] (ojos)	*eyes*
tepepula (pestañas)	*eyelashes*
scuepu (cejas)	*eyebrows*
epés (padre)	*father*
tolopa (frente)	*forehead*
amé (dame)	*give me!*
ochic (vete)	*go away!*
papa (abuelo)	*grandfather*
esse (abuela)	*grandmother*
chochocos (nieto)	*grandson*
mené (pelo)	*hair*
mojú (cabeza)	*head*
jelac (calor)	*heat*
mela (marido)	*husband*
canin (yo)	*I*
huelehueli (labios)	*lips*
sali (hombre)	*man*
etté (madre)	*mother*
huasoe (monte)	*mountain*
ahuo (boca)	*mouth*
ilé (no)	*no*
juku (nariz)	*nose*
(leguec sagu) ano (pon en la piedra)	*on*
ostumetac (se acasó	*perhaps*

[3] A. L. Kroeber, The Languages of the Coast of California South of San Francisco, UCPAAE 2 (1904). 49 ff.

[4] *H. H. Bancroft Collection*, MS C-C, 63:2 (= old Bancroft listing 35054).

[5] Cf. n. 1.

[5a] Reading of segment between s- and -tt- uncertain.

leguec ó lehueg (pon)	*put!*
huacai (rio)	*river*
tahuic (mar)	*sea*
atis (hijo)	*son*
sagu (piedra)	*stone*
ne (toma)	*take!*
inno (aquel)	*that one, he*
inoc (aquellos)	*those, they*
nepita (lengua)	*tongue*
kette (dientes)	*teeth*
osio (aguarda)	*wait!*
kiko (agua)	*water*
maasi (nosotros)	*we*
melaca (esposa)	*wife*
caniteths (conmigo)	*with*
mitheths (contigo)	
usuhuasi (muger)	*woman*
sese (palo)	*wood*
ju (si)	*yes*
mi (tu)	*you* (sg.)
mocotocon (vosotros)	*you* (pl.)

2. Saclan was a Miwok language.[6] The seven previously known Miwok dialects are classified into Coast Miwok, with three (that of Marin county, designated here M; that near Bodega Bay = B; and that, not contiguous with these, of Lake county = L), and Sierra Miwok, with four (the Plains dialect between Stockton and Sacramento, = P; the Amador or Northern dialect = N; the Tuolomne or Central dialect = C; and the Mariposa or Southern = S).

On the coast the Marin and Bodega dialects constitute a unit as contrasted with the Lake dialect, and to the east the three foothill dialects are closer to each other than any one of them is to that in the valley. Within the foothill group the Southern dialect diverges markedly from those of the north and center, which are fairly close, although there are a few lexical isoglosses linking the Northern dialect with that of the contiguous Plains. This classification was made in the early years of the present century on the basis of limited word-lists, and it is on the same basis that the following attempt will be made to assign Saclan its proper place within the Miwok stock. The discussion will show that Saclan belongs with Sierra Miwok and that it constitutes a new or fifth member of that group, although showing especial affinities with the foothill dialects and particularly with Northern or Amador speech.

The only full grammar of any Miwok dialect is L. S. Freeland's "Language of the Sierra Miwok," which essentially is a description of the Central dialect.[7] It may be guessed that the phonological structure of Saclan was similar to that of the foothill dialects, and accordingly the following

[6] The following published sources of Miwok linguistic material have been used in this paper. S. A. Barrett, The Geography and Dialects of the Miwok Indians, UCPAAE 6.338–68 (1908); idem, The Ethnogeography of the Pomo and Neighboring Indians, UCPAAE 6.1–332 (1908); Hale's Indians of Northwest America and Vocabularies of North America, with an introduction by Albert Gallatin, Trans. Am. Ethn. Soc. 2.123 (1848) (the Plains Miwok dialect called Talatui, abbreviated here HT); A. L. Kroeber, The Languages of the Coast of California North of San Francisco, UCPAAE 9.278–319 (1911); Henry R. Schoolcraft, Archives of Aboriginal Knowledge, Philadelphia 1860, vol. 3.428–34 (Marin Miwok collected by Gibbs, abbrev. G); idem, vol. 4.406–15 (Mariposa Miwok, collected by A. Johnson, abbrev. J); L. S. Freeland, Language of the Sierra Miwok, Indiana University Publications in Anthropology and Linguistics, Memoir 6, 1951; idem, Western Miwok Texts with Linguistic Sketch, IJAL 13.31–46 (1947). The Costanoan material comes from A. L. Kroeber, The Chumash and Costanoan Languages, UCPAAE 9.239–63 (1910); J. Alden Mason, The Mutsun Dialect of Costanoan, UCPAAE 11.470–72 (1916) (for the San Lorenzo dialect); R. F. Heizer, ed., California Indian Linguistic Records, The Mission Indian Vocabularies of H. W. Henshaw, Anthropological Records 15:2.160–86 (1955).

[7] All references in square brackets are taken from Freeland's material. Other sources are cited in the original spelling.

statements are made about Arroyo's orthography. Spanish spelling was rather better fitted for rendering the sounds of Indian tongues than those of most other western European languages, and most of the vowels and consonants of Saclan appear to have been written by Arroyo pretty much as they would be today. The following may be noted.

-hu- or -gu- were used for [w]: ahuo = C [ʔawo]; le-guec or le-hueg *put* = C [wík·] *to put*; sagua- *stone* = C[šawá·] id.

j- represented [h-]: juku *nose* = N hūku; ju *yes* = C [hïʔï].

s rendered both [s] and [š]: sali *man* = C [salí] *young man*; maasi *we* = N [más·i] and C [ma·š] *we* (excl.); sagua- = C [šawá·]; sette *eyes* = C [šïn̰ţï]; there is some question whether [s] and [š] were distinct phonemes in Sierra Miwok.

The glottal stop, of frequent occurrence in the central dialect, is of course disregarded by Arroyo, unless we see a reflex of it in the second -p- of tepepula *eyelashes*, cf. C [tïpïʔla] id.

The vowel system of Sierra Miwok exhibited phonemes of six different qualities: i e a o u ī. Saclan cognates of words which in the central dialect contain the high central vowel [ï] regularly write that vowel e: amé *give me!* = C [ʔám·ï] *to give to, to present*; epés *father*, cf. C [ʔïpï·] id.; kette *teeth* = C [kï̱ţ·ï] id.; sese *wood* = C [š·ïš·ï] id.; en *come*, cf. C [ʔïnï] *to come*; mené *hair* = HT mUnU id. The possible exceptions appear in final position: kiko *water* = C [kík·ï] id., nepita = C [nep·itï] id., ju *yes* = C [hïʔï], and inno *he* and inoc *those*, contrast S [ʔinï] *that* with C [no] *that*.

Sierra Miwok distinguishes a dental [t̪] and a retroflex stop [t]. Usually Saclan cognates write indiscriminately t, but in three words with the intervocalic dental they contain a geminate: sette, cf. N [šï̱t̪ï]; kette, cf. C [kï̱t̪·ï]; and etté *mother*, cf. C [ʔï̱t̪á·]. Corresponding to N [lút̪·i] *one*, however, Saclan offers luthri, id. The evidence for the phonetic value of the trigraph thr, frequently used by Arroyo, is conflicting; two statements of his are worth quoting. On the title page of his MS "Lecciones de Indios" occurs the following: "Todo se leerá como en Castellano, lo mismo que esto, excepto el *Thra*, *Thre*, *Thri*, *Thro*, *Thru* que no es cha, che, chi, cho, chu, que hallo en todos estos Ydiomas"; and on page 86, n. of his Mutsun phrase book we find: "Sciendum est hanc litteram T cum h et r successive non esse facilem pronuntiandi, nisi adhibeatur omnis industria linguae, quia aliud est tra et aliud thra" (it is to be observed that this letter t when followed by h and r is not easy to pronounce unless great energy of articulation is used, because tra is one thing and thra another). In his Karkin word-list Arroyo writes what may be the same suffix variously as -thrit, -thres, -thris, and -ths. In his Huimen material *he* is nothru but *he ate* NOS ca yolun, and in the same dialect what is apparently the same morpheme appears in the phrases ca olac-SINI *vengo á llorar* and ca yolun-THRINI *vengo á comer*. Huimen unuthras *9* and kithris *10* are written by Gibbs uh nes ash and kih chiss and by Barrett ûnūtas and kītsis. The Costanoan Juichun muthrel *head* corresponds to mōţel or mo·tel in San Lorenzo and Kroeber's mot·il in San Jose. A parallel to Arroyo's practice is Alexander Taylor's tra-ap corresponding to Kroeber's t·ap, the Monterey Costanoan word for *hair*. Kroeber[8] says of Costanoan: "t· is very palatal, as in Yokuts and Salinan, and its frequent orthography tr conveys a fair idea of the quality of its sound. De la Cuesta has written it thr, also ths, th, and tsh." And Mason,[9] speaking of Costanoan Mutsun, has this: "ţ is the tongue-blade *t* found in the Costanoan and neighboring languages. De la Cuesta wrote variously *tr*, *th*, *thr*, *thrs*, *trs*, etc. It is often difficult to decide whether the last consonant of the complex is a distinct sound or not." From this evidence it seems to be clear that the

[8] UCPAAE 9.250 (1910).
[9] UCPAAE 11.404 (1916).

missionary used his -thr- vel sim. in his recording of various languages for stops of point or blade articulation with more or less affrication, ranging into those which were sometimes apprehended as sibilants. Accordingly it seems justified to equate both Sac. luthri with N [lúṭ·i] and Sac. tolocothro *3* with C [ṭoló·- košu] id., to see the same ending in ohuothro *2* (for which there is no close Miwok parallel), and to assign to the 'comitative suffix' -teths or -theths the hypothetical value [teṭ], or something of the sort.

3. The following correspondences may be interpreted as reflecting phonetic changes. Kroeber[10] points out that words in the three foothill dialects with final vowel frequently have cognates on the plains and coast ending in consonants; the Saclan cognates of such words are always written with final vowel. The following sets will illustrate this: *teeth*, B gût, M kût gût, L gût, P kût, N kûtu, C [kïṭ·ï], S kuTu, cf. Sac. kette; *water* M L P kīk, N kikû, C [kík·ï], S kīku, cf. Sac. kiko; *eyes* B M L sût, N suTu, C [šïnṭï], S huntu, cf. Sac. sette; *tongue*, B lemtep, M lemtip, L letīp, P nepit, N nepītû, C [nep·itï], S nepïT, cf. Sac. nepita; *ears* B M L alōk, P alok, (S t-olko?), cf. Sac. alaco; *nose* B M L hūk, P hūūk, N hūku, cf. Sac. juku; *seven* P kenekak, N kenekagû, C. [kenék·akï], cf. Sac. keneheke.

The Saclan for *seven*, as contrasted with its cognates, exhibits the same vowel in all syllables. According to Freeland (p. 3) "there are indications in Miwok of an old inclination toward vocalic harmony", and there is a little evidence in the meager record that the process was somewhat more frequent in Saclan than in the related dialects: *mother* C [ʔïṭá·] (N S uta), cf. etté (= [ïṭï]?); *you*, pl. P mokotokni, cf. Sac. mocotocon; *ears* B M L P alok, Sac. alaco; *grandchild* M tcatco, L [tsʔats·o], cf. Sac. chocho-cos.

In a few words Saclan w corresponds to h elsewhere. usuhuasi *woman* is to be compared with P ocoohasi *girl*, and huasoe *mountain* is probably related to N hīsū-wit and C hīsūm, id. There is no doubt a connection between huelehueli *lips* and C [hewe·li] id. (cf. also in Costanoan Karkin huehuelethrit *mouth* and Mutsun wel·ewel *point of the lips*); and the isolated tahuic *sea* might go with N Wintun tcahi *lake*.

4.0. Before coming to the examination of the character of the relationship of Saclan to the other Miwok dialects, it will be necessary first to describe the lexical material for these dialects which is available for comparative purposes. The only source giving comparative word lists for all seven dialects is Barrett "Geography and Dialects of Miwok" with 145 items; 36 of the 63 Saclan entries appear in the lemmata. For the three western dialects there are the 282 Moquelumnan (= Miwok) entries in the same author's "Pomo Ethnogeography"; Kroeber 1911 supplies a few more words. Gibbs (Schoolcraft) has a short list of the Marin dialect, which also is recorded in Arroyo's Huimen, and Dana's vocabulary of Talatui (Hale 1848) is from a Plains dialect. Hundreds of words of the central dialect, as well as many in N and S and a few from P, are scattered through Freeland's grammar, and her "Western Miwok Texts with Linguistic Sketch" is similarly plentiful for Lake speech. The same author has generously placed at my disposal her lexical files of the central and Lake dialects; hers are the most accurate phonetic recordings. From all these sources it has been possible to obtain some comparative material for most of the 27 items not appearing in Barrett, but in many if not most cases this comparative material comes only from one or two other dialects, and accordingly is only of limited usefulness for our purpose. For our attempt to classify Saclan must be founded mainly on word distribution, and only secondarily on phonetic criteria, and accordingly we must rely chiefly on those

[10] UCPAAE 9.294 (1911).

36 words for which recordings have been made of all seven dialects.

4.1. The following are general Miwok:

I canin: L [kán·i], M kanni, P kanni, N [kán·i?], C [ka·n], S kanni; with cani-n (cf. cani-teths) is to be compared C [kanì·ŋ], the possessive case (in western Miwok the ending -n has both subjective and genitival function), which can be used as subject, cf. Freeland, p. 20.

you sg. mi: all dialects [mi?] or [mi].

boat saccas: B saka, M saka, G sha kah, P saga, N saku, S woTe, L nū.

come en: C [?ïnī], L [?o·ni], G oh ni.

daughter tune: C [tú·ne], HT tune *little one, child*, G too neh.

ears alaco: B M L alōk, P alok, S tolko, N tokosu, C [tó·košu].

eyes sette: B M L sût, N suTu, C [šïn̰ţï], S hunto.

grandfather papa: C [pa'pa], M L papa.

grandson chochocos: B tcatcai, M tcatco, L tsatsō, C [?acé·]. The likely relationship, in a Penutian context, of *hand* N C S tīssu, with Costanoan isu, and of Sac. teyekisa *beard* with Costanoan S. Lorenzo hēyek, Juichun eyec, Karkin jeyeketh, etc., permits the conjectural linking of the central dialect word without initial dental to the western forms (*t-ač- > *č-ač- ?), although Miwok is not a prefixing language.

nose juku: B M L hūk, P hūūk, N hūku, C S nīto.

those inoc: C [nó·ko?], Huimen nocu.

tongue nepita, vide supra.

teeth kette, v. sup.

water kiko, v. sup.

4.2. The following words, on the basis of word geography or phonology, link Saclan generally with eastern Miwok:

three tolocothro: B M L telēka, P teloko, N tolokou, C [ţoló·košu], S Tolokot.

seven keneheke: B sēlawī, M semlawī, L cemlawī, P kenekak, N kenekagû, C [kenéka·kï], S tītawa.

river huacai: BM tcok, L wūwe, P wakatce, N wakalû, C [waká·lï?], S wakal-mūTo. If huacai = [wakayi], the correspondence of -l- with -y- may fit into the set noted by Kroeber.[11]

stone sagu: B lûppū, M L lūpû, P N sawa, C [šawá·], S hawa.

tongue nepita, v. sup.

we maasi: L [ma·], M mako, Huimen maccu, G mahko, P maci, N [más·i?] (excl.), S mahi.

woman usu-huasi: B kūlēyī, M kūlēyis, L pōtsi, P ûsûû, N osa, C [?óš·a], S oha.

yes ju: B M L û, P hûû, N hu, C [hï?ï], S huu.

The next set of words shows particular affinities with the three foothill dialects:

three tolocothro, v. sup.

four oisa: B M hūya, L ōtōta, P ōyīseko, N S ōyīsa, C [?óy·is·a?].

eyes sette, v. sup., and of P w e l a i.

father epés: B M L apī, P appa, HT tata, N S upu, C (?ïpï·]. The final -s may be identified with the possessive pronominal suffix, C -s (Freeland p. 19) *his, her, its*; and that suffix may recur in chochocos *grandson*, atis *son*, and saccas *boat*,

mother etté: B M L ûnû, P üka, N S uta, C [?ïţá·].

mouth ahuo: B M lakūm, L lūppe, P lupe, N C S awo.

river huacai, v. sup.

teeth kette, v. sup.

water kiko, v. sup.

wood sese: B M L P tūmai, N sūsū, C [š·íš·ï], S huhu.

4.3. The following go most closely with N alone, or with the group N C:

one luthri: B M L kenne, P kenatu, N [lúţ·i], C S keñe.

mountain huasoe: B paiyī, M paiyis, L pawī, P wēpa, N hīsū-wit, C hīsūm, leme, S leme.

nose juku: B M L hūk, P hūūk, N hūku, C S nīto.

tongue nepita, v. sup.

eyes sette: B M L sût, P welai, N suTu, C [šïn̰ţï], S *huntu*. The Saclan word, like N, has the final vowel but lacks medial -n-.

4.4 The following may be interpreted as

[11] UCPAAE 9.294 (1911).

evidence for a distant connection with—or as borrowings from—the Plains dialect:

two ohuothro: B osa, M ossa, L ōtta, P oyoko, N C S otīko. If a correspondence -y- > -w- be admitted (cf. *beard* Sac. teyekisa, Cost. heyek :: Huimen jehue, *eight* M ōsūya :: B ōssūwa, and *mountain* M paiyis, B paiyī :: L pawī, then, with the different suffix levelled in different directions, it is possible to relate—at some time depth—the Plains and Saclan words.

forehead tolopa: cf. P tolo *head* and *hair* with C [top·ele] *forehead*, in Costanoan, e.g., uri is given as *head* in Santa Cruz, *hair* in Santa Clara, and *forehead* in Monterey.

grandmother esse: C [ʔamàʔ], M L hama, B haputcī; but cf. P ûsûû *woman*. If related, then P girl ocoo-hasi· = Sac. woman usuhuasi, P woman = Sac. old woman, grandmother, and C young man [salí] = Sac. man sali.

hair mené: B mōlū-ñkatcen, M kōlē-mōlū, L sapa, P tolo, N hana, C [yuše], S hīsok, but HT mUnU.

son atis: H T brother adi, C son [ʔáŋsi], G son eh ai, B M infant ūtī.

you pl. mocotocon: P moko (or mokotokni) M N C S miko.

4.5. The following, for which comparative material is practically limited to the central dialect, at least do not appear to furnish evidence against the general alignment of Saclan with the two northerly foothill dialects, insofar as the relationships suggested be accepted:

chin juyesi: C [ʔïykiši]??

eyelashes tepepula: C [tïpïʔla], cf. P [simbúkai].

eyebrows scuepu: C [piw·e]?

go away! ochic: C [wï·šak] *go*, perf., cf. P *go!* [ta(i)keyo]?

heat jelac: C [helá·kï] *summer*, *clear sky*, *year*.

wait! osio: C [ʔúč·uʔ] *stay!*

six jesmuhi: B M patcītak, L patsadat, P temepu, N S temōka, C [ṭém·uk·a]; but the connection with the three foothill dialects, if granted, is not close.

put! leguec ó lehueg: this word is to be analysed as le-guec, and the second element equated with C [wí·k] *to put*. The first element may tentatively be associated with the "emphatic" particle le·, lek (Freeland, p. 170), which however is in the central dialect always postpositive.

perhaps ostumetac: C [ʔïše·mïʔ]??

4.6. However, as already claimed, Saclan did constitute a Sierra Miwok dialect distinct from those of which more or less is now known; no parallels have been discovered for the following:

five supa: B kennekū, M kenekūs, L kedekko, P kasoko, N C masoka, S mahoka. I analyse su-pa, and take the second element to be the -p·a which is "suffixed to numeral and quantitative stems" (Freeland, p. 153), defined as "at a time". For the first syllable two etymologies are possible: from ka-so-ko and ma-so-ka we could isolate so, with the meaning *five* (?). Or we could see in su- the apocopated stem of a Penutian word for *hand*, Costanoan isu, N uk-usu and t-īssu, C [t-ís·ï], so that the Saclan can have once meant (*one*) *hand at a time*.

ten usiusius: B kītcī, M kītsis, L ūkūkūlsi, P ekūye, N C S naatca. A reduplication of the Penutian word for *hand* just referred to is suggested.

cold liselise: cf. C [tïn·a], G keet, sezze.

husband mela and *wife* melaca: for these the central dialect has respectively [naŋ·a] = *man*, and [ʔóš·a] = *woman*. The adverb *together*, C [mél·am·ï], contains (Freeland, pp. 170–2) the adverbial suffix -m·ï added "to some nominal stem", hitherto unidentified. The Saclan words accordingly can be guessed to have meant *partner*, *mate*. For the suffix -ca I find no parallel.

on (*the rock*) (sagua-)no: western Miwok has the locative suffix -toʔ, and the eastern dialects a definite loc. suff. -ṭo, -ṭ·oʔ; the Saclan, therefore, if accurately recorded, is distinct, though probably related.

with (cani-)teths, (mi-)theths: I have been able to discover nothing comparable, unless the frequent Karkin ending -thrit, -thris

vel sim. has some connection; but that is attached to nominal stems, and there is no indication whatsoever of any similar meaning.

4.7. There is, however, other and rather better evidence of westerly contacts for Saclan. A few words find parallels only in the western Miwok area, and some others have Costanoan affinities.

beard teyekisa: the word for beard is unrecorded for any eastern Miwok dialect, except for S hah muck given by J., but we find Huimen (=M) jehue and the following Costanoan forms, the correspondences among which appear to indicate that it was native to that stock: Karkin jeyeketh, Juichun eyec, S. Lorenzo heyek, S. Jose heyek, S. Clara eyekem, S. Cruz eyes, S. Juan Bautista eyes, Monterey eis.

crown of head lupulup: L *head* Lūbūddūk. The Saclan word seems to afford a fourth example of morphemic reduplication, in addition to the terms for *ten*, *cold*, and *lips*.

head mojú: B M mōlū, L Lūbūddūk, P tolo, N C hana, S hūkū. If the unexampled correspondence -[X]- :: -l- be questioned, one may prefer to compare Costanoan S. Juan Bautista *head* moxel.

lips huelehueli: S. Juan Bautista *point of the lips* welewel, Karkin *mouth* huelehuelethrit, C *lower lip* [hewe·li].

take! ne: contrast C [we·l] with Juichun ne, id.

4.8. The following correspondences fit neither into a Miwok nor into a Costanoan context; they exhibit rather the earmarks of diffusion across language boundaries from a focus somewhere in the delta area.

eight osocasi: B ōssūwa, M ōsūya, L ōttaia, P kawenta, N C S kawinta.

nine telekaka: B kennekoto, M ûnūtas, L kenenhēlak, P N C woe, S elīwa.

Saclan *7*, *8*, *9*, kene-heke, oso-casi, teleka-ka find a striking and unexpected parallel in one of the two recordings of Santa Clara Costanoan. kene-tc, osa-tis, telek-tic. This sequence of these three numerals, which in its complete form occurs only in these two languages and is neither Costanoan nor Miwok, surely has a historical connection with the Coast Miwok for *1*, *2*, *3*, kene, osa, teleka, as long ago noted by Kroeber[12] for Santa Clara. I shall discuss the problems involved on another occasion.

bow tanuca: P tanuka, S. Clara tanukam, San Francisco tanuka. Talatui, a different variety of Plains Miwok, had óli, and elsewhere in Miwok we find B M L kono, N C kutca, C [šol·uku], S yawe. The other Costanoan words are S. Jose conok, S. Cruz liti, S. Juan Bautista and Monterey lawan, Juichun colmothra, Soledad himlahuon.

no ilé: Santa Clara ele-kic, Suisun (Wintun) ele. The other Miwok terms are P hela and L hella (both contiguous to Wintun), B hama, M hūma, N C [ʔéw·iṭ̣ī?], S ken; and the other Costanoan words may be subsumed under something like *akwe. The Wintun cognates of Suisun ele, northern elēwa and southern ōles, seem to indicate a point of origin in the north. Another example of southerly spread from Wintun could be Henshaw's lé-ni *nose* in Santa Clara, which is unique in Costanoan but may be related to Patwin łenek, id. A search for further instances of such diffusion should be rewarding.

5. Linguistically, then, Saclan was an independent dialect of eastern Miwok, having close ties with the two northerly foothill dialects, particularly that of Amador, and a more distant connection with Plains speech, but situated in an area where it had contact with northern Costanoan, notably the Santa Clara dialect, and where it was exposed to Wintun influence. The only area that fits these requirements is the stretch of territory extending from Stockton, or a few miles to the east, close to the previously recognized western and southern boundaries of N and C, westward some forty or fifty miles across the plains and along the

[12] UCPAAE 9.249 (1910).

southern shore of the San Joaquin and of Suisun Bay, as far as the Mt. Diablo massif. From the southern part of this area, near the town of Byron, a low pass, followed by the present Kellogg Creek road, leads over the hills into the Livermore Valley, territory which has been assigned to the Santa Clara Indians. The Arroyo vocabulary of Juichun proves that the entire eastern shore of San Francisco bay, from San Jose north to the town of San Pablo, constituted one dialect area, and that of Karkin that a more distantly related form of Costanoan was spoken some miles to the east, beyond two or three ranges of low hills and along the shores of Carquinez strait, as far, perhaps, as the city of Martinez. Thus the whole area given to Saclan on the map accompanying Kroeber's 'Handbook' must be shifted some twenty or twenty five miles to the east. The Saclan habitat thus outlined borders on the west with Costanoan, on the north with Wintun, on the south and southeast with Costanoan and Yokuts, and to the east and northeast with other Miwok territory.

Although it is not much more than thirty miles in an air-line from the most westernly point of the area here proposed to the eastern parts of Coast Miwok, Saclan was not, as I have tried to show, in any sense linguistically transitional between the coast and Sierra groups; it was simply the westernmost language of the eastern division.

The area in question, east of Mt. Diablo, has been given by Kroeber partly to Costanoan and partly to northern Yokuts, on the basis of what now seems insufficient evidence.[13] But C. Hart Merriam,[14] on the testimony of native informants, assigned most of it to Indians of the Miwok stock, and that testimony, it seems to me, supports the argument here presented. Another support, although a more dubious one, may be derived from toponymy. It has been thought[15] that the name Saclan (Sacalan) is preserved in that of the Acalan-es district, which lies between the towns of Lafayette and Walnut Creek, scarcely a dozen miles east of San Francisco bay, and therefore very likely in Costanoan territory; the really serious difficulty, however, in the way of this equation is the lack of the initial consonant in the present place name. I therefore hesitantly suggest a connection with Hale's SAGAYA-YUMNES,[16] placed vaguely in the Plains country, and Kroeber's SAKAYAK-ÜMNI,[17] a village in the southern Plains dialect area near the border of N. We have seen (supra, s.v. huacai) some warrant for a correspondence of -l- and -y-, and the final -n of 'Saclan' may well be the Costanoan suffix common in tribal and place names.

I shall conclude by quoting Padre Arroyo's final remark in his treatment of the language: "Aqui se vé el Saclan que me ha gustado mucho mucho, y es pospositivo, como dixe al principio; Karkin y Juichun es un idioma, el Saclan es otro enteramente distinto!"

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[13] A. L. Kroeber, On the Evidences of the Occupation of Certain Regions by the Miwok Indians, UCPAAE 6.369–80 (1908).

[14] Distribution and Classification of the Mewan Stock of California, AA n.s. 9.338–57 (1907).

[15] Erwin G. Gudde, California Place Names (1949), p. 3.

[16] Hale, op. cit., p. 123.

[17] Handbook, p. 445.

HIDATSA III: STEMS AND THEMES

FLORENCE M. ROBINETT

COLORADO SPRINGS

3.0. Introduction
3.1. Theme constituents
3.2. Stem classes
3.3. Theme classes
3.4. Affix associations overlapping stem-theme classes
3.5. Examples:
Verbs (Stative, Active, S-A, Indeterminate)
Nouns (Inalienable, Alienable, I-A)
N-V
Minor particle themes

3.0. Hidatsa morphemes which do not appear in the affix list in **2**[1] are termed stems, and classified below by their association with affixes. This, then, accounts for all Hidatsa morphemes—they are either stems or affixes. It is now convenient to introduce a positional slot filled by stems and affix-stem sequences which make up, by virtue of their occurrence in this slot, the class of themes. This makes it possible to avoid such statements as: a (noun) stem plus a (verb) stem equals a (noun) stem, and to say, rather, that a (noun) stem plus a (verb) stem equals a (noun) theme. Instead of saying that a (verb) stem in association with a prefix equals a (noun) stem, we say that a (verb) stem plus the prefix equals a (noun) theme. Morphemes thus remain uniquely classified as noun stem, verb stem, particle stem, prefix, or suffix. Certain combinations of these only enter into the various kinds of thematic formation indicated.

3.1. The positional slot of a theme may be identified in terms of its boundaries, the immediately preceding or immediately following morphemes or phonemes, which flank the morphemes making up a theme. Among the boundaries which serve to identify a theme are preceding[2] prefixes of Class 40 (person markers) or prefix 51 (alienable possessor) and any following suffix or juncture phoneme; or, in the case of themes which do not occur with prefixes of Class 40, a preceding juncture phoneme and any following suffix or juncture. In some cases prefixes are included in themes, namely, those which occur after the last prefix of Class 40 or prefix 51. Suffixes are never included in themes. In the sequences # *prefix* + *prefix* # and # *prefix* + *prefix* + *suffix* # the theme constituents are prefix plus prefix; thus, for the first we could write alternatively # *theme* # and for the second # *theme* + *suffix* #. Themes thus composed of prefixes are designated minor themes, and distinguished from themes which contain stems, which are designated major themes.

The morphemic composition of themes is of the following types. Major themes are composed of: a single stem, as atí *house*; two stems, as wirí·htia *lake* (wirí *water* plus ihtía *big*); one or two stems preceded by one or two prefixes, as i·pakíši (prefix 11 + the stem pakíši *wipe*), akuwa·híri *worker* (prefix 32 + prefix 21 + the stem híri *work*), and arupáruwari·ri *society* (prefix 31 + the stems páruwa *short* and rí·ri *walk*). As noted

[1] **1** and **2** here refer to Hidatsa I: Morphophonemics, IJAL 21.1–7 (1955) and Hidatsa II: Affixes, IJAL 21.160–77 (1955), respectively.

[2] Discontinuous morphemes are here regarded as immediately preceded by prefixes which interrupt them. The discontinuous morphemes in Hidatsa are a few verb stems the initial vowel of which may be separated from the rest of the morpheme by actor prefixes. In listing stems this discontinuity is indicated by three dots after the initial vowel, i.e. in the position in which the person marking prefix may occur. Some such stems occur in two alternants; these are listed in **1.4**. Those with a unique shape are: a . . . kšía *hold*, á . . . kakaši *write*, a . . . háhku *be there*, a . . . ší *walk, travel*.

above, minor themes are composed of prefix plus prefix, as arúwa *somewhere* (prefix 31 + prefix 21).

All prefixes other than those of Classes 40 and 50 may occur in major themes. Prefixes of Classes 130 and 140 are always theme-included; prefixes of Classes 10–60, 20–70, 30–80, and 100–120 may or may not be, depending on whether they follow or precede person markers. (See **2.2** for statements on prefix distributions and examples.)[3]

3.2.1. Stems are classified on the basis of their distribution in respect to prefixes of Class 40, and suffixes 1061 (reflexive), 1071 (durative), 1121 (desiderative), 1282 and 1281 (imperative singular and plural).

Stems which occur with all of the affixes listed above are VERBS.[4] Thus, cáki in wi·cákiriac *I'm fussy* (41 + V + 1061 + 1271); cí·ri in cí·ri?i·c *it's always yellow* (43 + V + 1071 + 1271); hú in húara *you (plural) come!* (V + 1281) and húh *come* (V + 1282).

Stems which occur with prefixes of Class 40 but not with the suffixes listed above are NOUNS.[5] Thus, ára in wá·ra *my arm* (41 + N).

Stems which may not occur with prefixes of Class 40 are PARTICLES. Thus, hiri *now* (P).

3.2.2. Three sub-classes of verb stems and two sub-classes of noun stems are determined by the person marking paradigms with which they may be associated. (See **2.3** for treatment of the paradigms.)

Verb stems which occur with Paradigm C (stative actor) are STATIVE. Thus, rú·hi in wirú·hic *I stand up* (41.1 + V + 1271). Stative verb stems may occur not only with Paradigm C, but also with Paradigm F (causative actor) and Paradigm G (future actor).

Verb stems which occur with Paradigm D (active actor) are ACTIVE. Thus, tiría in watiríac *I run* (41.6 + V + 1271). Active verb stems occur not only with Paradigm D, but also with Paradigm E (goal), Paradigm F and Paradigm G.

There remains a sub-class of verb stems which are INDETERMINATE in respect to the active-stative distinction. Such verb stems include the few which occur only with Paradigm F (causative actor), plus or minus Paradigm G (future), as íkuck- in íkuckhe·c *he deceived him* (43 + V + 1021 + 43.9 + 1271). Other indeterminate verb stems, also few in number, are those which occur only with third person actor, as zero prefix, and hence cannot be assigned to a paradigm, as xaré· in xaré·c *it's raining* (43 + V + 1271).

A few examples are found of verb stems which fall into two of the sub-classes set up here. Thus, the stem kiré?e which is stative in wi·kiré?ec *I'm flying* (41.2 + V + 1271) and active in wahkiré?ec *I'm flying* (41.6 + V + 1271).

Noun stems which occur with Paradigm A (inalienable possessor) are INALIENABLE. Thus, ára in wá·ra *my arm* (41.5 + N).

Noun stems which occur with Paradigm B (alienable possessor) are ALIENABLE. Thus, áwa in wata?áwa *my land* (41.3 + 51 + N).

A few examples are found in which noun stems fall into both of the sub-classes above. Thus, á·ši, which with the inalienable paradigm is translated *horn* and with the alienable paradigm is translated *spoon*; and píša, which with the inalienable paradigm is *liver (person's own)* and with the alienable paradigm is *liver (animal's, for food)*. (Other

[3] Affixes which are not theme-included occur in the same positions in respect to themes as to stems; hence, S (stem) in the sequence formulas given for such affixes in **2** is replaceable by T (theme).

[4] Affixes of Classes 100 (suus, inceptive), 130 (completive), 140 (instrumentals), 1040 (iterative), 1050 (quantitative) and of 1270: suffixes 1276 (*because*), 1277 (reportative) and 1283 (emphatic) also occur only with verbs in our corpus, but either with a limited number of verbs, so that they are related to the definition of sub-classes of verbs, or so infrequently as to leave doubt as to what associations might be found if our Hidatsa corpus were expanded.

[5] Prefix Class 50 (alienable possessor) occurs only with nouns, but not with all nouns, and hence is relevant to the definition of a sub-class of nouns.

organs used as food are also treated as both inalienable and alienable.)

3.2.3. Active and stative verbs and inalienable nouns may be further sub-classified on the basis of the particular set of the person marking paradigm with which they occur, since each of these paradigms is composed of two or more sets of alternants of the three person marking morphemes. Thus, for active verbs, those which occur with Set Point Three (41.3 wa- first person, 42.3 ri- second person, 43.3 zero- third person) are distinguished from those which occur with Set Point Five (41.5 wa- first person, 42.5 ra- second person, 43.5 a- third person), with Set Point Six (41.6 wa- ~ wah- first person, 42.6 ra- ~ rah- second person, 43.6 zero- third person), and with Set Point Seven (41.7 w- first person, 42.7 r- second person, 43.7 zero- third person).

3.2.4. Those active verb stems which occur with Set Point Six may be further sub-divided on the basis of whether or not they occur with prefixes of Class 140 (instrumentals); verb stems which do occur with Class 140 are designated instrumental stems. Instrumental stems are distinguished from other stems in that they are bound—the occurrence of a prefix of Class 140 with an instrumental stem is obligatory—while non-instrumental stems are free.

Instrumental stems are further sub-divided on the basis of the particular group of Class 140 prefixes with which they occur; thus, those which occur with 141, 142 and 143 are distinguished from those which occur with 142, 143, 144, 145 and 146, and from those which occur with 141, 142, 143 and 144.

3.2.5. Cross-cutting the verb sub-classes discussed above are two sub-classes determined by the selection between the two allomorphs of suffix 1282 (imperative singular), since every verb stem in Hidatsa makes this selection. Thus, phé· *eat up* which occurs with 1282.1 (-zero ~ -h ~ -ka) is distinguished from kahé· *give away* which occurs with 1282.2 (-a ~ -ah ~ -aka).

3.3. Three major stem classes are distinguished above—noun, verb and particle; three theme classes—also noun, verb and particle—are distinguished on the basis of criteria which include those given for stem classes, i.e. the occurrence or non-occurrence with the affixes listed in **3.2.1.**

A theme which consists solely of a stem belongs to the class of that stem—in effect, a single noun stem is reclassified as a noun theme; a verb stem as a verb theme; a particle stem as a particle theme.

The class of a theme with two or more constituents is the same as the stem class of the first, if the first constituent is a stem, or is statable in terms of the sequence from the point of view of the first constituent if the first constituent is a prefix.

The following four combinations of stem classes appear in themes. Noun stem + noun stem = noun theme, as wírire *water's edge, bank*. Verb stem + verb stem = verb theme, as hí·šica·ki *bright red*. Noun stem + verb stem = noun theme, as atí?ahu *village*. Particle stem + verb stem = particle theme, as pírakihtia *one hundred*.

Themes composed of prefixes plus stems are noun themes when the initial constituent is prefix 11, 21, 31 or 32. Thus, i·pakíši *towel* (11 + verb stem), wa·apá·ri *weed* (21 + verb stem), aru?í *hair* (31 + noun stem), akuwa·híri *worker* (32 + 21 + verb stem), wa·?i·kí·ka *window* (21 + 11 + 131 + verb stem).

Themes composed of prefixes plus stems are verb themes when the initial constituent is prefix 101, 131 or 140. Thus kiké?e *scratch self* (101 + verb stem), khí· *drink up* (131 + verb stem) (cp. *window*, above, in which 131 occurs in a noun theme, the initial constituent of which is prefix 21), rahcáki *bite off* (142 + verb stem).

The sub-class of a theme composed of a stem plus a prefix may differ from that of the stem, as rušú·ki *clean* (141 + V), which is active, versus kirusú·ki *clean self* (101 + 141 + V), which is stative. Such sub-class changes are statable neither in terms of the prefixes nor of the stems.

Themes which are composed of two prefixes are particle themes, as wíhki *myself* (41.1 + 101).

3.4. Associations of affixes which occur with more than one theme class are given below. Certain of these will be treated in a future paper as determining word classes.

Affix classes which occur with noun, verb and particle themes are: 1090 (negative), 1220 (demonstratives), 1230 (directionals), and of 1270: suffixes 1271, 1278 (predicators) and 1279 (interrogative).

Affix classes which appear with nouns and verbs are: 10 (instrumentive), 20 (indefinite person), 30 (agentive, future), 1010 (approximative), 1020 (causative), 1190 (future), 1200 (plural), 1250 (*if, or*, past definite), 1260 (quotative), and of 1270: suffixes 1272 (substantive), 1273 (*as, while, at*), 1274 (concessive) and 1275 (distributive).

Suffix 1171 (in reference to time, place) occurs with verbs and particles.

Suffix 1241 (in reference to time) occurs with nouns and particles.

3.5.0. The following are examples of themes of the classes and sub-classes discussed above. These examples are selected from the sample discussed in **1**. The sample includes not only themes with associated affixes which make classification possible, but also themes without such associated affixes; the former are selected for citation here—only those themes for which sufficient inflection is given to make sub-classification certain.

The instrumental themes listed below (**3.5.1.2.**) are exhaustive for our total corpus.

For many verb themes which follow, it is possible to distinguish between the two cross-cutting imperative singular sub-classes. These are indicated by a following parenthetic (.1) or (.2), representing the selection of 1282.1 or 1282.2 respectively, except for those themes listed in **1.1** as ending in weak vowels, all of which occur with 1282.1, and themes ending in /a/ or /a·/ which are assigned to 1282.2. (The loss of morpheme final /a/ before morpheme initial /a/ and the shortening of morpheme final long vowels before juncture make this choice arbitrary.)

Only the 'first alternant' (as defined in **1.4** fn.6) is cited in the lists which follow; other alternants given in **1.4**, are not repeated here; free alternants, however, are given here.

3.5.1.1. Stative verb themes are listed below with the person marking set of Paradigm C with which they occur.

Set Point One (wi- ~ wih-, ri- ~ rih-, i- ~ ih-): rú·hi *stand up*, pahtá· *roll over* (.1), išíare· *refuse, not allow* (.2), ihá·ri *be finished*, irá· *yawn*, iká·xti *err*, iwía *cry*, kikúa· *listen, hear*, ixpáti *be full*, kakhú·ri *growl*, kháci *understand*, kirušú·ki *clean self*, ráhca· *be wise, be careful*, kiké?e *scratch self*, kirúšia *be naked*, kikší *dress up*.

Set Point Two (*wi·-*, ri·-, zero-): xaká *move*, rakcí *be heavy*, kísi *be well, be recovered*, púa *swell, be swollen*, paškía *have kinky hair*, šikía *have curly hair*, táchi *be thick*, tá·pa *be soft*, kachí *be cool*, kí·xha?icha· *be a Crow*, kúhka *be ready* (~ ikúhka which occurs with Set Point One), cácki *be vocally noisy* (~ icácki which occurs with Set Point One) (.2), cáki *be good*, cawúhci *be straight*, cawé· *be hot*, cawe·?ate?e *perspire*, šú·wa· *be slow*, hí·ši *be red*, haxíši *be wet*, xé· *be dripping* (.1), hácki *be tall*, xi?é· ~ xé· *be old*, ihtía *be big*, xí·pi *be wrinkled*, xá·pi *be thin*, xáraxi *be lean*, xátataka *be swift*, xá·xi *be spotted*, xiría *itch*, xapá· *be lost*, xí·ri *be yellow*, xúa *fall down*, akí *be with, be in (belong)*, atá·ri *menstruate*, apá·ri *grow*, até?e *come up, come out* (.2), achá *be close*, awaháša *be scattered*, aškúa *be lame*, irikí *land*, irí *live*, ichía *be strong* (also occurs with Set Point Eight), iríchi· *stink*, i·xá *be dirty*, i·káxtí *get into trouble*, iripí *be fat*.

Set Point Eight (wi-, ri-, zero-): hapá· *be cold*, hí·ta *be fast in linear motion*, cipí ~ kicipí *drown, dive in*, há·wi *sleep*, išía *be bad*, ópxia *stop, pause*, akhá·ka *be late*, iché· *be awake, wake up, get away*.

3.5.1.2. Active verb themes are listed

below with the Paradigm D sets with which they occur.

Set Point Three (wa-, ri-, i-): ré?e *talk* (.2).

Set Point Five (wa-, ra-, a-): áciwi *follow tracks*, axúa *hide*, rí·ti *be hungry*.

Set Point Seven (w-, r-, zero-): ú?u *wound, shoot*, (.1), ú?axpi *shoot*, ú?ušia *arrive*, ú?a· *climb*, úa *make fire*, é?e *have*, oxpía *stuff hole*, ó·pahti *cork*, okháta· *dress*, ošé· *put in*, ó·cahti *bury*.

Set Point Six (wa- ~ wah-, ra- ~ rah-, zero-): tiría *run*, phe· *eat up* (.1), páta· *break, bust* pó?oshi *fold, roll* (.2), ré· *go* (.2), pá· *announce, holler*, pí *bathe*, pá·hi *sing* (.2), té· *die* (.2), tháki *hurt*, rakí *make shrill noise*, kiwaxhú *ask* (.1), tá·xa *decoy*, tá·ri *cross*, kipa·táki *close*, kúre?e *hold, carry, keep* (.2), kikí·ri *look*, kírata *like*, kirahí *get up*, kiruxúki *comb*, kárawi *remember*, kúxti *help*, kikhí· *drink up*, hí· *drink* (.1), kía *fear*, kháta· *push up* (*wood in fire*), kú?u *give* (.1), kárache· *believe*, kú·ci *take, get, guess*, kíruwi *count*, kikíškia *consider, feel, try*, kiwé?e *tell* (.2), kíware· *be surprised, pleased*, kikú·cki *learn, study* (.2), šúa *spit*, kišúa *spit out*, karáxiša *forget*, kikuhá· *call*, kiwía *turn back*, kiká·ki *sew*, kiwaké?e *pray* (.2), kiké·še· *watch, care for*, kikúa *set a trap*, kahé· *give away* (.2), kirú· *pick, earn back*, kikhé· *give back*, kíwiriki·ri *go in, come in*, ka·rí *ask for*, kiráši *love*, kuré· *chase*, kúaxi *catch up with*, kó·ši *whistle*, ké?e *dig* (.2), kacá· *blow at*, khá· *laugh*, karáš *escape, elope*, kí· *be back, be there*, kí *mean*, cixí *jump*, cá:ki *wail, mourn*, ší·ši *blow, hiss*, híri *do, make* (.2), húa *cough*, hú *come* (.1), háxpi *sneeze*, hácake·ki *have hiccoughs*, xapí *lie down*, ríki *hit*, raharé· *stand*, atá·ri *come out*, ihkíriki *throw*, i·kúhpa· *hate*, ihpúa *throw*, íka· *look at*, ákakaši *write* háku *be there*, aší *walk, travel*.

The following list is a continuation of active verb themes with Set Point Six person markers. It includes all instrumental stems, as defined above; but only certain instrumental prefixes, as indicated here by their index numbers, occur with any particular instrumental stem to form themes. Translations of the individual instrumental prefixes are given in **2.1**; rather than abstract translations for individual instrumental stems, translations are given below for the combinations of particular prefixes with each stem.

-cá· after 141 *mash, squash* (as between fingers), 142 *chew*, 144 *string* (as beads), 145 *rip, cut* (as with scissors).

-cára· after 141 *unstring* (as beads), 142 *unstring with mouth*, 143 *unstring with feet*, 144 *rip*, 145 *rip*, 146 *unstring*.

-carúa after 141 *pull by hand*, 142 *pull with teeth*, 143 *push along with feet*, 144 *push along*.

-ckapí after 141 *pinch with fingernails*, 142 *pinch with teeth*, 143 *step on*, 144 *step on*.

-cká·ti after 141, 142 and 143 *pinch*.

-ckupí after 141, 142 and 144 *bend*, 143 *bend with feet*.

-háci after 141 and 142 *stick*, 143 *shell with feet* (as corn) (?), 144 *stick through* (as finger through paper).

-hcáka after 144 *pile up*.

-hcáki after 141 *break* (as rope by pulling), 142 *divide*, 143 *break with feet*, 146 *cut*.

-hcí after 141 *take*, 142 *bite*, 144 *stick in* (as stake in ground).

-hí after 141 *lift*, 142 *get up*.

-hkápi after 141 *scratch*.

-hkawíra after 142 *lean on*.

-hkíci after 141 *miss* (as ball), 142 *miss* (as shot), 143 *miss* (in kicking) 144 *miss* (with hand).

-hkúpi after 142 *dent*, 143 *dent with feet*, 144 *dent with hand*.

-hpí after 141 *pull down*, 142 *knock off*, 143 *kick off*, 146 *push off* (.2).

-htíši after 141 *touch with hand*, 142 *rest head on*, 143 *touch with feet*, 144 *wipe*.

-káci after 145 *butcher*.

-kapí after 142 *pick up, collect*.

-karáš after 141 *tear*, 142 *tear with teeth*, 143 *tear with feet*, 144 *cut* (as with knife), 145 *slash*.

-karé· after 141 *stick fingers in* (as in dough), 143 *stick feet in* (as mud).

-ká·ti after 142 *drive in* (as stake in ground).

-ká·xi after 141 *mark with fingers*, 142 *mark with teeth*, 143 *mark with feet*, 144 *mark by pushing away*.

-kiría after 141 *steer*, 143 *push with feet*, 146 *push along*.

-kíši after 141 *wring*, 142 *wipe*, 143 *slide feet over*, 144 *wipe off*.

-kíti after 141 *pull* (as weeds).

-kó·pi after 143 *make hole with foot*, 144 *make hole* (as with finger).

-páti after 145 *saw*.

-páki after 141 *scatter by hand, spill*, 142 *spread with teeth*, 143 *spread with feet*, 145 *scatter*.

-pé· after 141 *tear*, 143 *kick*, 145 *wear out* (as by rubbing).

-púxi after 142 *bite*, 143 *cut, bruise with feet*.

-pú·xi after 141 *break in small pieces with hands*, 143 *mash with feet*.

-šá· after 141 *let go, drop*, 142 *let go with teeth*.

-šáhi after 145 *let go* (?).

-šakí after 141 *split with hands*, 143 *split with feet*, 144 *split*, 145 and 146 *split with knife*.

-šášhi after 141 *stick hand/finger in*, 142 *stick teeth in*, 143 *stick foot in*, 144 *stick finger in*, 146 *stick in*.

-šía after 146 *bone* (remove meat from).

-šíši after 141 *shake*, 145 *cut by incision*.

-ški after 141 *pull out*, 143 *pull out with feet*.

-škú after 143 *push out with feet*.

-štá· after 142 *chew on*, 143 *tramp down*.

-šúa after 141 *bend*, 143 *bend with feet*, 144 *bend by pushing*, 146 *bend*.

-šú·ki after 141 *wipe off, clean*, 143 *wipe with feet*.

-šutí after 141 *miss* (catch), 142 *swallow*, 143 *miss with foot* (as step).

-tá· after 141 *break*, 142 *break with teeth*, 143 *break with feet*, 144 *break by pushing*.

-táre· after 142 *stick with teeth*, 143 *stick with feet*, 144 *stick* (as with needle), 145 and 146 *stick with knife, stab*.

-táši after 141 *make squishing noise with hand*, 142 *make squishing noise with teeth*, 143 *make tracks*.

-tá·ti after 141 *roll with hand* (as ball), 142 *roll with teeth*, 143 *roll by stepping on edge*, 144 *roll*.

-táxhi after 141 *play with with hand*, 142 *bite at, gnaw*, 143 *kick at*, 144 *poke at*, 146 *jab at*.

-thí after 142 *beat* (as rug), 143 *step on*.

-tohtí after 141 *sift*, 142, 144 and 146 *shake*, 143 *beat with feet*.

-wí·ri after 141 *twist, wring*.

-xá· after 141 *spread* (as blanket on floor), 142 *sweep*, 143 *push with feet*, 144 *push away*.

-xháki after 141 *grab* (something soft), 143 *push feet into mass of particles* (as beans), 144 *push hands into mass of particles*.

-xapí after 141 *pull off* (as blanket), 142 *bite off*, 143 *kick off*, 144 *shove off*.

-xá·ti after 141 *rake toward*, 143 *kick aside*, 144 *push away*.

-xé·ši after 141 *tear with fingers*, 142 *tear with teeth*, 143 *tear with feet*, 145 *tear with knife*.

-xhía after 141 *turn fingers down, count on fingers*.

-xíši after 141 *plough*, 143 *dig up with feet or spade*, 144 *dig up, shove*.

-xpí after 141 *pull off*, 142 *knock off, hit*, 143 *kick off*, 144 *push off*.

-xtúa ~ -štúa after 141 *mash or twist between hands*, 142 *chew* (as on cloth), 144 *rub, scrub*.

-xhúa after 141 *throw down*, 142 *run over*, 143 *kick over*, 144 *push over*.

-xhúti after 141 *tear with finger*, 142 *hit and break*, 143 *kick a hole in*, 144 *punch a hole in* (as with knife), 145 *cut, punch hole*.

-xuxhí after 141 *break*, 142 *break with teeth*, 144 *break* (as by wind).

3.5.1.3. Indeterminate verb stems are listed below.

Verb themes which occur only with third person actor (zero-) are xaré· *rain* and wá·phi *snow*.

The following verb themes occur only with Paradigm F (causative actor); the

causative suffix with which each occurs is given in parentheses: kahúk(he·) *deceive*, rí(he·) *put down*, í·ri(he·) *wear, use*, íkuck(he·) *measure*, í·kua(he·) *use*, ó·ci(hke·) *rest*, še· *do, say* (.1) (this is the only stem in our corpus which occurs with causative actor not preceded by a causative suffix).

3.5.1.4. Doubly classifiable verb themes are kiré?e *fly* (.2), which is stative with Set Point Two and active with Set Point Six, and kikší *dress up*, which is stative with Set Point One and active with Set Point Six.

3.5.2.1. Inalienable noun themes are listed below with the Paradigm A set with which they occur.

Set Point One (wi-, ri-, i-): -íša *tooth*, -exí *paunch*, -í *mouth*, -í?awahu *inside of mouth*, -axí·ša *spleen*, -íšta *eye* (∼ -šta which occurs with Set Point Three), -íxhi *forehead*, -íta *face*, -íxpa *wing*, -icáki *staff, cane*, -aká *older brother*, -wáki *chest*, -aru?í *place of fur, hair*, -ókci *shadow*, -ikáti *wrist*.

Set Point Two (wi·-, ri·-, zero-): -aru?atá *sore*, -aru?híru *bones, skeleton*, -o·raxpí *skin*, -akupá *parents*, -aká·ša *ligament*, -cí·ta *tail*, -cúwata *brain*, -ší·pa *intestine*.

Set Point Three (wa-, ri-, i-): -cí *foot*, -cí?awahu *sole of foot*, -cí?ihpu *end of foot, toe*, -xú *body*, -šíthiru *backbone*, -šíta *back*, -rú·ri *back*, -ráši *tongue*, -rášpa *shoulder*, -xuaxá *knee*, -rashí *biceps*, -šapaxhé *elbow*, -chú·pa *shinbone*, -ríki *leg*, -rá·ka *young (ones)*, -cú:ka *younger brother*, -rá·ti *brother-in-law*, -hú· *mother*, -kú· *grandmother*, -xúa?išhí *clothes*, -tú *song*.

Set Point Four (wa-, ri-, zero-): -šáki *hand*.

Set Point Five (wa-, ra-, a-): -á·pa *neck*, -á·phiru *back of neck*, -ára *arm*, -púhka *hat*, -rá *hair*, -hkúxi *ear*, -hpá *ear* (formerly used of animals only), -pá *nose*, -páta *chest, trunk*, -atú *father*, -pací *throat, voice*, -áci *nipple*, -atíkuta *parent*, -ahtú *head*.

Set Point Six (wa- ∼ wah-, ra- ∼ rah-, zero-): -é·ri *stomach*, -ráta *heart*, -rakúa *friend*, -kirá?a *husband*.

Set Point Seven (w-, r-, zero-): -ó?oke *plume*, -ú·ši *anus*, -é?e *food*.

3.5.2.2. Alienable noun themes are: awá *land*, wa·píša *grandchild*, šúka *dog*, icú:wuška *horse*, aruwía *wife*, wirúxha ∼ rúxha *gun*, kí·ša *younger sister* (man speaking), wíruxi *ice*, xáxi *pinto*, i·?ihé *paint*, wía *older sister, woman*, áši ∼ waší *robe, blanket*, aku?iré?e *interpreter*, itá·hka *old man, wife's father*, ú·waki *bed, quilt*, í·puxi *rattle*, irí *blood*, í·tišhi *halter*, íhkiche *seed*, ú·ka *clay*, ahí *turnip*, ášhu *rope*, ári *road*, ká·kša *potatoes*, wíripuxhi *beer*, hu·pá *shoe*, páruari·ri *society*, xúpa·ri *medicine*, cú:wa *seed*, ú:waca *money*, wúa *fish*, hopí· *hole*.

3.5.2.3. Noun themes which are doubly classifiable as alienable and inalienable are: á·ši *horn* as inalienable (with Set Point Five) and *spoon* as alienable; píša *liver* (person's) as inalienable (with Set Point Five) and *liver* (animal's for food) as alienable; and arupáruwari·ri *society* as inalienable (with Set Point Two) and as alienable.

3.5.3. Two examples are found of themes which are classifiable as both noun and verb: irí *live* as a stative verb (with Set Point Two) and *blood* as an alienable noun; and kí *pack* as an active verb (with Set Point Six) and an alienable noun.

3.5.4. Minor particle themes are listed here; each theme is followed parenthetically by the index numbers of its constituent prefixes. wihki *myself* (41.1 + 101), rihki *yourself* (42.1 + 101), ihki *himself, herself, itself* (43.1 + 101), arúwa *somewhere* (31 + 21), akúwa *someone* (32 + 21).

ISTHMUS ZAPOTEC VERB ANALYSIS II

VELMA PICKETT

SUMMER INSTITUTE OF LINGUISTICS

0. Introduction
1. Stems
2. Bound morpheme classes
3. Bound morpheme inventory
4. Constructions with preposed morphemes
5. Constructions with postposed morphemes
6. Constructions with preposed-postposed limitations
7. Morphophonemics
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0. Isthmus Zapotec[1] stems, as classified by their distribution with bound morphemes, are of three major classes: verbs, nouns, and particles, and several small minor classes related to these. The present study is limited to the structure of the verbs, by far the most complex class. The study includes the types of stems and the affixes and clitics, but for the most part does not include combinations of more than one free form.

1. All verb stems fall into one of two classes, C or N.[2] Class C stems may be inflected directly to form a type of construction defined as NON-CAUSATIVE. They may also occur with a stem-forming prefix 11 {si-}[3] (causative); stems consisting of 11 + C are inflected to form a type of construction defined as CAUSATIVE.

Class N stems are inflected directly to form a type of construction defined as NEUTRAL. The causative vs. non-causative contrast is absent.

Example of non-causative constructions: ri-nda?abi-nií[4] *it boils* (35, C, 95) ({-nda?abi} *boil*).

Example of causative constructions: ru-si-nda?abi-be (nií)[5] *she boils it* (35, 11, C, 93, Ob).

Example of neutral constructions: ruše?e-beé *he makes mistakes* (35, N, 93) ({-še?e} *make mistakes*).

Classes C and N each contain a subclass of stems Cs and Ns (stative) which may

[1] A language spoken by about 75,000 Indians in the southern part of the state of Oaxaca, Mexico. Data were gathered during field trips to the town of Juchitán in the years 1944–50, under the auspices of the Summer Institute of Linguistics. The basic organization of this paper was done while the author was a teaching fellow at Cornell University, under the direction of Charles F. Hockett. In reorganization of presentation for purposes of publishing, the author was greatly assisted by William L. Wonderly.

[2] For an introductory treatment of the causative formation and aspect morphemes, see my Isthmus Zapotec Verb Analysis I, IJAL 19.292–6 (1953).

[3] The phonemes of Isthmus Zapotec are: fortis consonants p, t, k, s, š, L, N, W; lenis consonants b, d, g, z, ž, m, n, l, w, y, ř, ř, ƀ, h, ?; vowels i, e, u, o, a; high (symbolized with an acute accent) and low (unmarked) tones. Phonetic explanation of the phonemes may be found in Pickett, op. cit., p. 292 or Nonphonemic Stress: a Problem in Stress Placement in Isthmus Zapotec, Word 7.60–65 (1951).

[4] Morphemes in the illustrations are separated by hyphens. In the parenthetic identification of the participating morphemes, numbers refer to affixes, identified in **3**; S is 'stem' and C and N refer to stem classes, as defined in **1**; Ob is a free object (marked in parenthesis in form and gloss). In the present section, compounded stems are indicated by SS. In all subsequent illustrations, compounds are written without hyphens and are represented by a single C, N, or S. The numbers and braces used to symbolize morphemes are in **2**.

[5] In the writing of the inanimate pronoun {nií}, space vs. hyphen do not symbolize a phonological difference, but distinguish between two morphologically different patterns. The object (written nií) parallels in usage the free forms in the person and animal third persons and the other persons, while the subject (-nií) parallels the bound forms.

occur with the stative prefix 21 {na-} as well as with other verb prefixes, and generally occur without prefixes when following a noun: na-kiitši *is white* (21, Cs); bi-kiitši *became white* (34, Cs); yo?o kiitši *white house* (noun stem, Cs). (Morpheme 21 also occurs with a number of bound stems of a minor class and certain noun stems, which do not occur in constructions with other verb prefixes: na-beé? *narrow* (21, bound S) benye *mud*, na-benye *muddy* (21, noun S).

The symbol S is used to indicate any type of verb stem (C, 11 + C, N), when the specific stem class is not relevant to the illustration.

Stems may be either single morphemes or compounds of two morphemes. Compound stems include various types, as illustrated in the paragraphs that follow:

(1) Simple (monomorphemic) S plus particle: {-e?eda} *come* + {neé} *and* or *with* > {-e?eda-neé} *bring*: b-e?eda-neé-bé (nií) *he brought (it)* (34, SS, 93, Ob); ru-uni-neé-bé (ní na?a) *he does (it) with (me)* (35, SS, 93, Ob, Ob).

(2) Simple S plus noun stem {-naaba} *ask* + {di?idža?} *word* > {-naaba-di?idža?} *ask a question*: gu-naaba-di?idža (hnyo?oú?) *ask your mother*: (34, SS, Ob).

(3) Simple S plus Spanish verb infinitive. The Zapotec verb stem in this construction is either {-aaka}, which in most other constructions means *happen* or *come to pass* or {-uuni}, which otherwise means *do*. The second constituent in the compound may theoretically be any Spanish infinitive. The meaning of the construction is simply the meaning of the Spanish verb plus the aspect indicated with the Zapotec verb stem. When the verb would be reflexive in form in Spanish, it occurs with {-aaka}; otherwise the stem {-uuni} occurs: r-aaka-retratar-beé *he gets his picture taken* (35, S, retratar, 93); r-uuni-retratar-beé *he takes pictures* (35, S, retratar, 93).

(4) Simple S plus unique constituent, class undefinable: {-uuni} *do* or {-aaka} *happen* + {-bia?} > {-uuni-bia?} or {-aaka-bia?} *be acquainted with*: ru-uni-bia?-be (ná?a) or r-aaka-bia?-be (ná?a) *he knows (me)* (35, SS, 93, Ob).

2. Bound morphemes[6] are grouped into classes based on the type of construction into which they enter, their order in relation to the stem, and combinations of these two criteria.

Morpheme classes determined by the constructions into which they enter are called CONSTRUCTION CLASSES and are symbolized by two-digit numbers ending in 0. Individual morphemes are symbolized by numbers ending in a digit from 1 to 9; the first digit of the morpheme identifies its construction class. For example, class 30 includes morphemes 31, 32, 33, 34, 35, 36, and 37.

To some extent these construction classes also parallel the classes based on linear order, but not entirely. These ORDER CLASSES are determined by how many other morphemes may come between them and the stem, (i.e. C or N, without prefix 11, which is in order class 1.). The linear order is implicit in statements throughout the description but is shown graphically in the diagram of sequence limitations, in which the order is indicated by position to the left or right of the two stem classes, C and N.

The diagram shows the restrictions on sequences of the bound morphemes as well as their linear order. The diagram is constructed on the analogy of a wiring diagram in which the 'current' (speech sequence) proceeds from left to right, through or around the various circles (morphemes) in accordance with the wiring set-up. The morpheme numbers given in the circles are of the construction classes discussed above.

[6] The terms 'preposed,' 'postposed,' and 'bound' morphemes are used in preference to 'prefix' and 'suffix' because most of the morphemes discussed are proclitic or enclitic in total distribution.

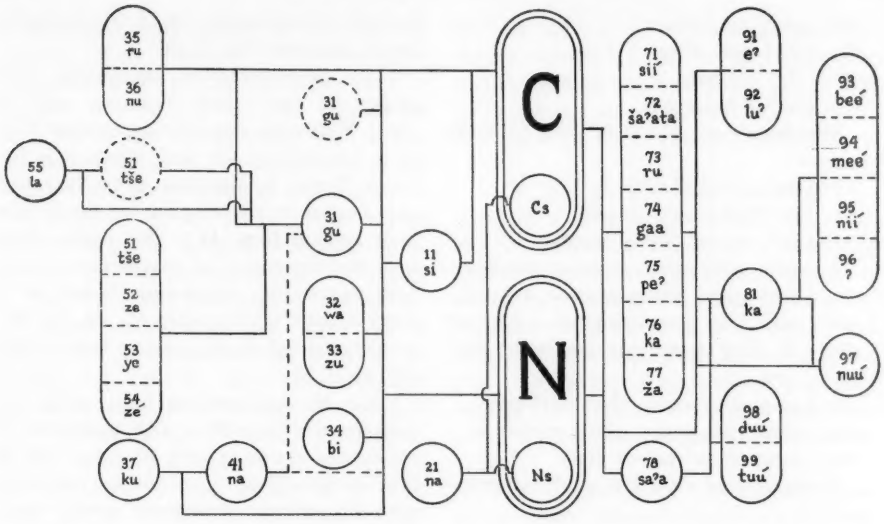

Diagram of Sequence Limitations

The forms given in the circles are name-forms of the morphemes, those cited in braces in the text.

Stem position on the chart is indicated by C (with subclass Cs) and N (with subclass Ns).

The following conventions apply to the diagram: any circle which does not have a line leading into it indicates a morpheme which may begin a construction. From the beginning morpheme the sequence follows any line going up, down or to the right through the various circles. Two or more morphemes joined together in an elongated circle, with only dotted lines separating them, have a similar distribution as to both linear order and construction type (see first paragraph of this section), and the lines entering or leaving the circle apply to all morphemes within that class.

3. Morphemes are here listed by name-forms only; other allomorphs are shown in **7**. Morphemes of classes 10–70 mark various types of aspect.

11: {si-} causative
21: {na-} stative
31: {gu-} potential
32: {wa-} perfective
33: {zu-} incompletive
34: {bi-} completive; singular imperative
35: {ru-} habitual
36: {nu-} unreal
37: {ku-} continuative
41: {na-} movement
51: {tše-} movement-intention, present
52: {ze-} movement-intention, future
53: {ye-} movement-intention, completive
54: {zé-} movement-intention, incompletive
55: {la-} plural imperative
61: {ké-} negative
62: {kádi-} negative
63: {-di} negative
71: {-sii} *as soon as*
72: {-ša?ata?} *too much*
73: {-ru} *still, yet*
74: {-gaa} *meanwhile*

75: {-pe?} emphasizer
76: {-ka} *right away*
77: {-ža} reverser
78: {-sa?a} reciprocal

Morphemes of classes 80 and 90 mark subject:

81: {-ka} plural of subject
91: {-é?} first person singular
92: {-lu?} second person singular
93: {-beé} third person singular, humans
94: {-meé} third person singular, animals
95: {-nií} third person singular, inanimate
96: {-?} third person singular, known subject
97: {-nuú} first person plural inclusive
98: {-duú} first person plural exclusive
99: {-tuú} second person plural

Morphemes of class 100 mark interrogation:

101: {-lá} yes-or-no questions
102: {-ya?} questions other than yes-or-no
103: {nye?e-} yes-or-no questions; occurs only with 101.

4. Constructions involving preposed morphemes are of four types, characterized by the first constituent or by the combination of first and second constituents. They are designated class 20 constructions, etc., on the basis of the class of the morpheme characterizing them.

Class 20 construction begins with morpheme 21 {na-} and continues with a stative stem (Cs or Ns): na-wi?ini *is little* (21, Cs).

Class 30 constructions begin with any morpheme of class 30 and continue with the stem. These constructions indicate various aspects, the meanings of which are suggested by the labels of the class 30 morphemes as given in **3**.

Examples: gu-ka?a-beé *he'll (probably) write* (31, S, 93); wa-ka?a-beé *he has written* (32, S, 93); zu-ka?a-beé *he will write* (33, S, 93); bi-ka?a-beé *he wrote* (34, S, 93); bi-ka?a *write*! (34, S); ru-ka?a-beé *he writes* (35, S, 93); nu-ka?a-beé *if only he would write* or *he ought to have written* (36, S, 93); ku-ka?a-beé *he is writing* (37, S, 93).

Class 40 construction begins with morpheme 37 {ku-} and continues with 41 {na-}. With some stems the sequence of 37 + 41 is followed by 31; with others it is followed directly by the stem. (This limitation is indicated on the diagram by the broken lines leading from 41.) This construction indicates the aspect of continuative action with movement: ka-na-gu-ka?a-beé *he is going around writing* (37, 41, 31, S, 93); ka-nay-aasi-beé *he is going around asleep* (37, 41, S, 93).

Class 50 constructions begin with any morpheme of class 50 or with morpheme 35 or 36, and continue with 31 {gu-}. All of these constructions except the one beginning with 55 indicate intention, usually with movement, related to the action: ri-g-aaze-beé *he always goes to bathe* (35, 31, S, 93); ní-g-aaze-beé *he was going to bathe (but didn't)* (36, 31, S, 93); tše-g-aaze-beé *he's going to bathe* (51, 31, S, 93); zi-g-aaze-beé *he will go to bathe* (52, 31, S, 93); ye-g-aaze-beé *he went to bathe (and has returned)* (53, 31, S, 93); zí-g-aaze-beé *he went to bathe (and hasn't returned)*.

A construction beginning with 55 and continuing with 31 indicates plural imperative: la-gú-ka?a *write*! (55, 31, S); la-gú-ka?a-nuú *let's write* (55, 31, S, 97). With some stems the first person plural construction may optionally include or omit morpheme 55: gú-uni-nu (nií) (31, S, 97, Ob) or la-gu-uni-nu (nií) (55, 31, S, 97, Ob) *let's do (it)*.

A construction beginning with 55 and continuing with 51, 31 and stem indicates plural imperative plus movement: la-tšégu-uni (nií) *go do it* (55, 51, 31, S, Ob).

5. With a few limitations, described in **6**, any construction thus far given may occur with any of the postposed morphemes.

Postposed morphemes are principally subject indicators, but also include some

morphemes which qualify or quantify the action. These, termed action-limitation morphemes, are of class 70. They may in general precede the subjects (classes 80 and 90) in any construction, with a few semantic restrictions obvious in terms of our culture. One such restriction is indicated on the diagram: 78 {-saʔa}, reciprocal, occurs only with plural subjects, e.g. ka-nií-saʔa-duú *we were talking together* (37, S, 78, 98).

The forms and meanings of the action-limitation morphemes are given in **3**. Examples: gi-luuže-sí-beé *as soon as he finishes* (31, S, 71, 93); r-oo-šaʔata-beé *he eats too much* (35, S, 72, 93); kay-óo-rú-beé *he is still eating* (37, S, 73, 93); kay-óo-gaa-beé *he is eating meanwhile* (37, S, 74, 93); ny-áabi-pe-luʔ . . . *you would surely have said* . . . (36, S, 75, 92); ru-uni-ka-be (nií) *he does (it) right away* (35, S, 76, 93, Ob); ru-uni-ža-be (nií) *as though he does (it)*! or *like fun he does it*! (35, S, 77, 93, Ob).

Morpheme 81 {-ka}, plural of subject, follows either the stem or stem plus a class 70 morpheme, and precedes a class 90 morpheme (subject). 81 may occur with the third person morphemes 93, 94, 95, 96; it optionally occurs with 97 (first person plural inclusive). It does not occur with morphemes 91 (first singular), 92 (second singular), 98 (first plural exclusive) or 99 (second plural).

Examples of the various person-subjects: ru-ʔund-áʔ *I sing* (35, S, 91); ru-ʔunda-luʔ *you* (sg) *sing* (35, S, 92); ru-ʔunda-beé *he* or *she sings* (35, S, 93); ru-ʔunda-meé *he, she* or *it* (animal) *sings* (35, S, 94); ri-žaalé-nií *it* (inanimate) *comes open* (35, S, 95); ru-ʔunda-ʔ *he, she* or *it sings*[7] (35, S, 96); ru-ʔnda-nuú or ru-ʔnda-ka-nuú *we* (inclusive) *sing* (35, S, 97) or (35, S, 81, 97); ru-ʔnda-duú *we* (exclusive) *sing* (35, S, 98); ru-ʔunda-tuú *you* (pl) *sing* (35, S, 99); ru-ʔunda-ka-beé *they sing* (35, S, 81, 93).

6. Of the constructions based on occurrence with preposed morphemes, only the imperative constructions include any limitation between preposed and postposed morphemes. First person plural imperatives, beginning with 54 {la-} or 31 {gu-}, end with 97 {-nuú}, optionally preceded by 81 {-ka}. Second person imperatives, beginning with 54 {la-} (plural) or 34 {bi-} (singular), never include morphemes from class 80 or 90.

There are two other construction types which depend partially on obligatory relationships between preposed and postposed morphemes, but which are not indicated on the diagram.

The first of these preposed-postposed limitation constructions begins with one of two morphemes, 61 {ké-} or 62 {kádi-}, which indicate negative, and continues with the constructions already described. These two morphemes are in partial complementation: only 61 precedes morphemes 32, 33, 35, 52, 53, and only 62 precedes 37, 34, 21. Either may occur, however, before 36, 51, 31. Before 36, morpheme 61 occurs more frequently than 62.

Examples: ké-r-oo-beé *he doesn't eat* (61, 35, S, 93); ké-ny-óo-beé *he didn't eat* (61, 36, S, 93); kádi-gu-dóo-beé (. . .) *he ate, not* (e.g. because he wanted to, but because she insisted) (62, 34, S, 93); kádi-kay-óo-beé *he is not eating* (62, 37, S, 93); kádi-na-kiitší-nií *it is not white* (62, 21, S, 95).

In the negative constructions, any of the postposed morphemes may occur. In addition, a negative morpheme 63 {-diʔ} may

[7] Morpheme 96 occurs only when the identity of the subject is known from previous context. When occurring in constructions including 34 {bi-}, morpheme 96 may mean either third person singular completive or singular imperative, depending on the larger context. Thus bi-ʔinda-ʔ may mean either *he, she* or *it sings* or *sing!* Often the word {maáʔ} *already* precedes the construction to indicate completive. In a few verbs there is a tonal distinction between the two forms, but the present data are insufficient to provide a class distinction on this basis.

occur optionally, generally following the morphemes of class 70 if they occur:[8] ké-ni-nii-di-duú *we didn't talk* (61, 36, S, 63, 98); ké-ni-nii-sa?a-di-duú *we didn't talk together* (61, 36, S, 77, 63, 98). Morpheme 63 occurs only in constructions with 61 or 62.

The second preposed-postposed-limitation construction type begins optionally with morpheme 103 {nye?e-} or an interrogative particle such as {pará?a} *where?*, {póra} *when?*, {žinyé?e} *why?*, {ži} *what?*, continues with any construction thus far discussed (except imperatives) and ends optionally with 101 {-lá} or 102 {-ya?}, indicating interrogation. This construction may include much more than the single verb unit; for it may unite a complete utterance of a number of free morphemes.

103 presupposes 101 (but not the reverse); the combination or any construction including 101 marks a question to which the response is an affirmative or a negative (sometimes the words for *yes* or *no*, but more frequently an affirmative or negative statement repeating the verb used in the question).

Interrogative particles such as those listed above begin constructions which optionally end in 102 for non-yes-or-no questions. Examples: zi-ee-ú?-lá or nyé?e-zi-ee-u?-lá *will you go?* (33, S, 92, 101) (103, 33, S, 92, 101); ži gu-un-é? or ži gu-un-é-ya? *what shall I do?* (31, S, 91), (31, S, 91, 102).

7. Alternations in shapes (allomorphs) of morphemes are of three types: PHONOLOGICALLY DEFINED (predictable in terms of the phonemes of the environment; symbolized by ∼); MORPHOLOGICALLY DEFINED (predictable in terms of specific morphemes or morpheme lists; symbolized by ∞);[9] FREELY ALTERNATING (or nearly free; sometimes idiolectal) symbolized by ‖.

[8] Some idiolects have {-di?} preceding the class 70 morphemes.

[9] For these terms and the second symbol, see Eugene A. Nida, The Identification of Morphemes, Lg. 24.414–41 (1948).

The phonologically defined allomorphs, however, occur principally within certain morphologically defined limits, as the formulas given below will reveal. Only one type of alternation has been noted which might be termed automatic or universal (i.e. occurring throughout the language in certain phonological conditions). This alternation is the reduction of a sequence of three /u/ or /a/ vowels to two, e.g. {ru-} + stem {-uuni} > ru-uni (35, S). This is not true of /i/, as evidenced in one verb which includes the form bi-ií-? *became sour* (34, S, 96).

Two other types of alternations are nearly universal in terms of phonological environment. The first is an alternation between allomorphs containing a final glottal stop and those without. The first form occurs when utterance final, the second when followed by other morphemes. This alternation occurs in words of more than one syllable when the syllable containing the glottal stop is not stressed, or in stressed syllables which contain a cluster of two like vowels. Examples: gu-udži-lu? *you said* (34, S, 92), but gu-udži-lu (nií) *you said* (*it*) (the stress is on the vowel cluster in the first syllable); iraá? *all*, but iraá-nìl *all of it* (the stress is on the /aa/ syllable).

This alternation also occurs in one-syllable words containing the syllable nucleus V?V and ending in ? when utterance final. Other one-syllable words do not have this alternation. Examples: hnya?á? *my mother*, but hnya?á sikaruú *my beautiful mother*; gie? *flower*, gie? sikaruú *beautiful flower*.

Some idiolects have certain exceptions to these phonological alternations, keeping it from being describable as universal.

A second nearly universal alternation is between allomorphs containing a final cluster of like vowels and those with only one vowel (the first vowel with its tone remains; the second is lost), the latter form occurs elsewhere than phrase final: gu-

udži-beé *he said* (34, S, 93), but gu-udži-be (ná?a) *he said (to me)*. In general this alternation occurs only when the final syllable is not a stressed syllable. Compare the following: sikaruú *beautiful* and sikaruúnií *it is beautiful* (the syllable /ruu/ is stressed), but tšuupaá *two* and tšuupa bá?du? *two children* (the first syllable is stressed). One exception has been noted, the word {neé} *and* or *with*, which occurs with both vowels when used as a complete sentence and as the second member of a compound: neé *and* (freely, *yes, you too*, when in answer to *me too?*; b-e?eda-neé-bé (nií) *he brought (it)*, but not in other contexts: ne ná?a *and me*.

In the description of the remaining allomorphs no attempt is made to set up an overall classification of stems in terms of the allomorphs discussed. Instead, the statement begins with the morphemes of class 50 and, continuing with each class of affixes in the order shown on the diagram (from left to right), discusses first the allomorphs of the affixes and second the variations in stem shape in constructions in which they occur. Morphemes which occur in only one shape are not discussed.

7.1. Morphemes 51, 52, 53, and 54, listed with shapes ending in /e/, also have allomorphs ending in /i/. This alternation is usually between idiolects, but is occasionally free within the same idiolect. Morpheme 53 has a third idiolectally alternating allomorph ?i-. In each case the symbol for free alternation is used in the formulas. Examples of each morpheme follow.

Morpheme 51: {tše-} = tše- || tši-: tše-g-aaze-beé || tši-g-aaze-beé *he's going to bathe* (51, 31, S, 93).

Morpheme 52 {ze-} = ze- || zi-: ze-g-áaze-beé || zi-g-áaze-beé *he will go to bathe* (52, 31, S, 93).

Morpheme 53 {ye-} = ye- || yi- || ?i-: ye-g-aaze-beé || yi-g-aaze-beé || ?i-g-aaze-beé *he went to bathe (and has returned)* (53, 31, S, 93).

Morpheme 54 {zé} = zé- || zí-: zé-g-aaze-beé || zí-g-aaze-beé *he went to bathe (and still hasn't returned)* (54, 31, S, 93).

7.2. Morpheme 32 {wa-} = wa- ~ way- ~ wayu-. The first-named allomorph occurs with stems that begin with a consonant other than ?, the second with vowel-initial stems, and the third with ?-initial stems: wa-tše?e-beé *he has made mistakes* (32, S, 93); way-aaze-beé *he has bathed* (32, S, 93); wayu-?uya-beé *he has seen* (32, S, 93).

7.3. The other six morphemes of class 30 are described in terms of four distributional sets labelled 1A, 1B, 1C, and 2.[10] Each set includes an allomorph of each of the six morphemes, and all allomorphs of a given set share the same morphologically definable distribution; i.e. 1A ∞ 1B ∞ 1C ∞ 2, depending on the verb stem. But no one morpheme has four allomorphs corresponding to these sets (some have the same allomorph in two sets, others in three); it is for this reason that the sets are considered distributional rather than strictly allomorphic.

The allomorphs of these six morphemes are now listed, with the distributional sets to which they belong; examples are to be found under the distributional statements which then follow. (The name-forms of these morphemes are taken from the allomorphs in set 2.)

Morpheme 31 {gu-} = gi- [1A, 1B] ∞ Ø [1C] ∞ gu- [2].[11]

Morpheme 33: {zu-} = (za- ~ zy-) [1A, 1B, 1C] ∞ zu- [2]

Morpheme 34: {bi-} = bi- [1A, 2] ∞ (gu- ~ guy-] [1B, 1C].

Morpheme 35: {ru-} = ri- [1A, 1B, 1C] ∞ ru- [2].

Morpheme 36: {nu-} = (ni- ~ ny-) [1A, 1B, 1C] ∞ (nu- ~ ny- ~ nyu) [2].

Morpheme 37 {ku-} = (ka- ~ kay-) [1A,

[10] See f.n.2.

[11] The symbol Ø indicates a zero allomorph.

1B, 1C] ∞ (ku- ∼ kay-kayu-) [2].

The phonologically defined alternations (marked by ∼) occur as follows: the first allomorph given occurs before consonant-initial stems (other than ʔ-), the second before vowel-initial stems. When a third is given it occurs before ʔ- initial stems. Where no third is given it is due to the fact that no ʔ-initial stems have been found in the constructions involved.[12] One exception has been found to the forms listed for occurrence with vowel-initial stems: a stem beginning with the vowel /i/ (only one such has been found) occurs with the form which otherwise occurs before consonant-initial stems: {-íí} *be* or *become sour*: wa-íí-níí *it has become sour* (32, S, 95); za-íí-níí *it will get sour* (33, S, 95); ni-íí-níí *it should have soured* (36, S, 95); ka-íí-níí *it is getting sour* (37, S, 95).

The morphologically defined alternations (marked by ∞) depend on the stem morphemes.

Class N stems each occur with one of the distribution sets; the greater number of these occur with set 1A or 2.

Examples of N with 1A prefixes: {-eene} *understand*: gi-eene-beé *he ought to understand* (31, N, 93); zi-eene-beé *he will understand* (33, N, 93); bi-eene-beé *he understood* (34, N, 93); ri-eene-beé *he understands* (35, N, 93); ny-eene-beé *he ought to have understood* (36, N, 93); kay-eene-beé *he is understanding* (37, N, 93).

Examples of N with 1B: {-tšeesa} *jump*: gi-tšeesa-beé *he ought to jump* (31, N, 93); za-tšeesa-beé *he will jump* (33, N, 93); gu-tšeesa-beé *he jumped* (34, N, 93); ri-tšeesa-beé *he jumps* (35, N, 93); nu-tšeesa-beé *he should have jumped* (36, N, 93) ka-tšeesa-beé *he is jumping* (37, N, 93).

Examples of N with 1C: {-C$_x$iite} *play*[13] kiité-beé *he should play* (Ø31, N, 93); za-giite-beé *he will play* (33, N, 93); gu-džiite-beé *he played* (34, N, 93); ri-giite-beé *he plays* (35, N, 93); ni-gíite-beé *he should have played* (36, N, 93); ka-gíite-beé *he is playing* (37, N, 93).

Examples of N with 2: {-yuubi} *look for*: gu-yuubi-beé *he should look* (31, N, 93); zu-yuubi-beé *he will look* (33, N, 93); bi-yuubi-beé *he looked* (34, N, 93); ru-yuubi-beé *he looks* (35, N, 93); nu-yuubi-beé *he should have looked* (36, N, 93); ku-yuubi-beé *he is looking* (37, N, 93).

Most C stems occur with one set in the non-causative construction and a different set in the causative construction. The usual distribution is with one of the sets numbered 1 in the non-causative construction and set 2 in the causative.

Examples with 1A in non-causative, 2 in causative: {-aanda} *get well, heal*: gi-aanda-níí *may it get well* (31, C, 95); zi-aanda-níí *it will get well* (33, C, 95); bi-aanda-níí *it healed, it is well* (34, C, 95); ri-aanda-níí *it heals* (35, C, 95); ny-aanda-níí *if only it had healed* (36, C, 95); kay-aanda-níí *it is healing* (37, C, 95); {-si-aanda} *cure* (11, C): gu-si-aanda-níí *may it cure* (31, 11, C, 95); zu-si-aanda-níí *it will cure* (33, 11, C, 95); bi-si-aanda-níí *it cured* (34, 11, C, 95); ru-si-aanda-níí *it cures* (35, 11, C, 95); nu-si-aanda-níí *it should have cured* (36, 11, C, 95); ku-si-aanda-níí *it is curing* (37, 11, C, 95).

Examples with 1B in non-causative, 2 in causative: {-aʔ} *be made, constructed*: gi-aʔ-níí *it should be made* (31, C, 95); zi-aʔ-níí *it will be made* (33, C, 95); guy-aʔ-níí *it was made* (34, C, 95); ri-aʔ-níí *it is made* (habitually) (35, C, 95); ny-aʔ-níí *it should have been made* (35, C, 95); kay-aʔ-níí *it is being made* (37, C, 95). {-z-aʔ} *make, construct* (11, C): gu-z-áʔ-be (níí) *he should*

[12] It may be the case that the type of alternation represented in ni- ∼ ny- occurs also with the forms ri-, bi-, and gi-, but the difference is not as easily discernible. Some speakers even make a tonal distinction between these forms used with certain stems and the same morphemes with other stems, suggesting a morphologically defined distribution of bi- and by- etc. This feature has not as yet been checked with enough speakers to make any more definite statement about it.

[13] C$_x$ in root identification refers to varying consonants explained in **7.5**.

make it (31, 11, C, 93, Ob); zu-z-a?-be (nií) *he will make (it)* (33, 11, C, 93, Ob); bi-z-a?-be (nií) *he made (it)* (34, 11, C, 93, Ob); ru-z-a?-be (nií) *he makes (it)* (35, 11, C, 93, Ob); nu-z-a?-be (nií) *he should have made (it)* (36, 11, C, 93, Ob); ku-z-a?-be (nií) *he is making it* (37, 11, C, 93, Ob).

A few C stems occur with the same set in both non-causative and causative constructions. Examples with 1A in both: {-reeza} *be* or *get torn*: gi-réeza-nií *let it get torn* (31, C, 95); za-reeza-nií *it will tear* (33, C, 95); gu-reeza-nií *it tore* (34, C, 95); ri-reeza-nií *it tears* (35, C, 95); ni-réeza-nií *it should have torn* (36, C, 95); ka-réeza-nií *it is tearing* (37, C, 95); {-tš-eeza} *tear* (11, C): gi-tš-éeza-be (nií) *let him tear (it)* (31, 11, C, 93, Ob); za-tš-eeza-be (nií) *he will tear (it)* (33, 11, C, 93, Ob); gu-tš-eeza-be (nií) *he tore (it)* (34, 11, C, 93, Ob); ri-tš-eeza-be (nií) *he tears (it)* (35, 11, C, 93, Ob); ni-tš-éeza-be (nií) *he should have torn (it)* (36, 11, C, 93, Ob); ka-tš-eeza-be (nií) *he is tearing (it)* (37, 11, C, 93, Ob).

Certain additional morphologically defined alternations of class 30 morphemes, related to a few verb roots, are now given.

Morphemes 31, 33, and 35 have a shape /C/ rather than /CV/ when occurring with a few stems that begin with vowels: {-aaze} *bathe*: g-aaze-beé *he should bathe* (31, S, 93); z-aaze-beé *he will bathe* (33, S, 93); r-aaze-beé *he bathes* (35, S, 93); {-oo} *eat*: g-oo-beé *he should eat* (31, S, 93); z-oo-beé *he will eat* (33, S, 93); r-oo-beé *he eats* (35, S, 93); {-e?} *drink*: g-eé-beé *he should drink* (31, S, 93); z-e?-beé *he will drink* (33, S, 93): r-e?-beé *he drinks* (35, S, 93); {-e?eda} *come*: g-e?eda-beé *he should come* (31, S, 93); z-e?eda-beé *he will come* (33, S, 93); r-e?eda-beé *he comes* (35, S, 93).

Morpheme 34 {bi-} has varying allomorphs with these stems, as follows: bi- in constructions with morphemes 97 and 98 (first person plural) with stems {-e?} *drink*, {-e?eda} *come*, {-aaze} *bathe* and {-aasi} *sleep*; b- in other constructions with {-e?eda} *come*; gu- in all other constructions including these stems. Examples: bi-de?-duú *we drank* (34, S, 97) (stem allomorphs seen in the illustrations in this paragraph are discussed later); bi-uupa-duú *we came* (34, S, 97); bi-duuze-duú *we bathed* (34, S, 97); bi-duusi-duú *we slept* (34, S, 97); b-e?eda-beé *he came* (34, S, 93); gu-e?-beé *he drank* (34, S, 93); gu-uze-beé *he bathed* (34, S, 93); gu-usi-beé *he slept* (34, S, 93); gu-doo-beé *he ate* (34, S, 93); gu-do?-doó *we ate* (34, S, 93).

It is difficult to definitely assign these additional allomorphs of class 30 morphemes to the previously discussed distributional sets of allomorphs. The set occurring with {-e?eda} *come* is like set 1A except for the /C-/ forms of 31, 33, and 35. Those occurring with the remaining stems discussed fit better into set 1B, except for the alternation with allomorph bi- of morpheme 34 in constructions with first person plural morphemes.

These stems themselves also have varying allomorphic shapes in certain constructions. In the following formulas, the second allomorph given occurs in constructions with morphemes 97 and 98, and the first occurs elsewhere. The distribution of the remaining allomorphs is described below for each individual verb.

{-e?} *drink* = -e? ∞ -de? ∞ -eé; {-e?eda} *come* = -e?eda ∞ -uupa ∞ -enda; {-aaze} *bathe* = -aaze ∞ -duuze ∞ -uze; {-aasi} *sleep* = -aasi ∞ -duusi ∞ -usi; {-oo} *eat* = -oo ∞ -do? ∞ -dao ∞ -doo ∞ -ao.

Illustrations including the first allomorphs listed (all with 31, S, 93): r-e?-beé *he drinks*; r-e?eda-beé *he comes*; r-aaze-beé *he bathes*; r-aasi-beé *he sleeps*; r-oo-beé *he eats*.

In the constructions including morphemes 97 and 98, morphemes 31, 33, and 35 have their full /CV/ shape. Illustrations (all with 35, S, 97): ri-de?duú *we drink*; ri-uupa-duú *we come*; ri-duuze-duú *we bathe*; ri-duusi-duú *we sleep*; ri-do?doó *we eat*. The stems in some of these first person plural constructions are gradually being

regularized. Thus there are idiolectal variations such as ri-duuze-duú || r-aaze-duú *we bathe*; ri-duusi-duú || r-aasi-duú *we sleep* (35, S, 98).

A few other stems also have an allomorph beginning with /d/ in constructions with morphemes 97 and 98. One of these, -ʔuna *cry*, is replaced by -duʔna in these constructions: ri-duʔna-duú *we cry* (35, S, 98).

The other allomorphs of the formulas given above occur in the following distributions (excluding distributions already mentioned): {-eʔ} *drink*: allomorph -eé in constructions including morphemes 31 {gu-} and 92 {-luʔ}, 93 {-beé} or 94 {meé}: g-eé-luʔ *you should drink* (31, S, 92); g-eé-beé *he should drink* (31, S, 93); g-ee-ka-beé *they should drink* (31, S, 81, 93); g-eé-meé *he (animal) should drink* (31, S, 94); {-eʔeda} *come*: allomorph -enda occurs in constructions including morpheme 91 {-eʔ} first person singular: r-endá-ʔ *I come* (35, S, 91). {-aaze} *bathe*: allomorph -uze occurs in constructions including morpheme 34 {bi-} completive: gu-uze-beé *he bathed* (34, S, 93). {-aasi} *sleep*: allomorph -usi likewise occurs in constructions including morpheme 34: gu-usi-beé *he slept* (34, S, 93). {-oo} *eat*: allomorph -dao occurs in constructions including both morpheme 34 and 91: gu-dao-áʔ *I ate* (34, S, 91); allomorph -doo occurs in constructions with morpheme 34 but with other person morphemes: gu-doo-beé *he ate* (34, S, 93); morpheme -ao occurs in constructions including morphemes 91 with aspect prefixes other than 34: r-ao-áʔ *I eat* (31, S, 91).

Five stems beginning with /ʔu/ have allomorphs beginning with /ʔi/ when occurring with 34; the stems are {-ʔuya} *see*; {-ʔuti} *kill*; {-ʔutu} *grind*; {-ʔunda} *sing*; and {-ʔuna} *cry*: bi-ʔiya-beé *he saw* (34, S, 93); bi-ʔitu-beé *she ground*; (34, S, 93) bi-ʔiti-beé *he killed* (34, S, 93); bi-ʔinda-beé *he sang* (34, S, 93); bi-ʔina-beé *he cried* (34, S, 93).

The stems {-uuni} *do* and {-uuna} *hear*, beginning with /u/, also have allomorphs beginning with /i/ in construction with morpheme 34; the allomorph of {-uuni} in these constructions also has a glottal stop preceding the vowel: bi-ʔini-beé *he did* (34, S, 93) and bi-ina-beé *he heard* (34, S, 93).

7.4. Morpheme 21 {na-} = (na- ~ nay-) ∞ **Ø-** ∞ y- ∞ ni ∞ n- ∞ g- ∞ zu-. na- is the 'regular' allomorph before consonant-initial stems, nay- before vowel-initial stems. **Ø-** has been found with less than a dozen stems. Examples of these three allomorphs follow: na-ndáʔ- nií *it is hot* (21, S, 95); nay-aa-nií *it is clean* (21, S, 95); džaá-nií *it is full* (Ø21, S, 95) (cf. ri-džaa-nií *it gets filled*, with prefix 35).

The other allomorphs of 21 each occur with only one or two stems; all such roots that appear in our data are now listed.

y- occurs with the stem {-uʔdžuʔ} *spoil*: y-uʔdžu-nií *it is spoiled* (21, S, 95).

g- occurs with the stem {-eete} *go down*: g-eeté-nií *it is deep* (21, S, 95) g-eeteʔ *below* (21, S).

ni- occurs with the stem {-siaʔasi} *cause to sleep*: ni-siaʔ asi-beé *he is asleep* (21, S, 93).

n- occurs with the stem {-aaNda} *hang*: n-aaNda-nií *it is hung* (21, S, 95).

zu- occurs with the stem {-žaale} *open*: zú-žáálé-nií *it is open*. It also occurs with the second allomorph of stem -$C_x$ii ∞ -uba[14] *sit down*: zu-uba-beé *he is seated*.

7.5. Morpheme 11 {si-} = si ∞ C_1- ∞ **Ø-** ∞ s- ∞ z- ∞ g- ∞ tš- ∞ nd- ∞ C_1- ∞ C_2- ∞ C_3- ∞ C_4- ∞ kw- ∞ dž- ∞ ž- ∞ t- ∞ ʔ-. The first eight allomorphs are listed in order of statistical predominance (dictionary count); the remainder are arranged by similarity of shape or of distribution. Examples show both the monomorphemic stem and the stem including morpheme 11, then a non-causative and a causative construction based on these.

si- is the most frequent allomorph: {-raa} *be used up*, {-si-raa} *use up*: bi-raa-nií *it was all used up* or *it's all gone* (34, C, 95); bi-si-raa-be (nií) *he used (it) all up* (34, 11, C, 93).

[14] For C_x here and below see f.n. 13.

C_f- is a fortis consonant otherwise identical with the stem-initial (lenis) consonant. After this allomorph of 11, the root is represented by an allomorph which lacks its initial consonant.[15] {-žiidži} *laugh*, {š-iidži} *cause to laugh*: bi-žiidži-beé *he laughed* (34, C, 93); bi-š-iidži-be (lá?a) *he made (her) laugh* (34, 11, C, 93, Ob).

Ø is a zero allomorph: {-laa} *escape*, {-Ø-laa} *save, rescue*; bi-laa-beé *he escaped* (34, C, 93), bi-laa-be (lá?a) *he saved (her)* (34, Ø11, C, 93, Ob).

s-: {-ui?} *go out, be extinguished* (candle, light or fire), {-s-ui?} *put out, extinguish*: bi-ui?-nií *it went out* or *was put out* (34, C, 95); bi-s-ui? (nií) *put (it) out* (34, 11, C, Ob).

z-: {-a?} *be made*, {-z-a?} *make*: ri-a? (laari) *(cloth) is made* (35, C, Subj.), ru-z-a?-be (láari) *he makes (cloth)* (35, 11, C, 93, Ob).

g-: {-aaze} *take a bath*, {-g-aaze} *bathe* (someone else): r-aaze-beé *she bathes* (35, C, 93); ru-g-aaze-be (bá?du?) *she bathes (the child)* (35, 11, C, 93, Ob).

tš-: {-a?azi} *go in*, {-tš-a?azi} *put in*: ri-a?azi-nií *it goes in* (35, C, 95), gu-tš-a?azi-be (nií) *he puts (it) in* (35, 11, C, 93, Ob).

nd-. {-eete} *go down*, {-nd-eete} *lower*: ri-eete-beé *he goes down* (35, C, 93), ri-nd-eeté-bé (nií) *he lowers (it)* (35, 11, C, 93, Ob).

The allomorphs C_1-, C_2-, C_3-, C_4- each represent a series of consonant allomorphs that alternate in construction with the different aspect prefixes. As with the C_f- allomorph, so also with these, the stem is represented by an allomorph which lacks an initial consonant. The phonemic shapes of allomorphs C_1-, C_2-, and C_3- are identical when in constructions beginning with prefix 31, 32, 33, 35, 36, or 37; but they are non-identical in other aspect constructions. The shapes of C_2- and C_4- are identical when in constructions beginning with prefix 34, and also when in those beginning with class 50 morphemes; they are non-identical in other aspect constructions. The complete list of shapes is given separately for each of the four allomorphs.

C_1- = k- ∞ g- ∞ d- ∞ t-. k- appears in constructions beginning with 31: {-da?abi} *be massaged*: -k-á?bi-beé *he should massage* (Ø31, 11, C, 93).

g- appears in constructions beginning with 32, 33, 35, 36 or 37. Example with 32: wa-g-a?abi-beé *he has massaged* (32, 11, C, 93). d- appears in constructions beginning with 34: gu-d-a?abi-beé *he massaged* (34, 11, C, 93). t- appears in class 50 constructions. Example with 51: tši-t-a?abi-beé *he is going to massage* (51, Ø31, 11, C, 93).

C_2- = k- ∞ g- ∞ l- ∞ nd-. k- appears in constructions with 31: {-u?u} *enter*: k-ú?-be (nií) *he should put (it) in* (Ø31, 11, C, 93, Ob). g- appears in constructions beginning with 32, 33, 35, 36, or 37. Example with 35:

[15] William L. Wonderly adds the following comment: "An alternative analysis of the forms set up with the C_f- allomorph is to set up an allomorph F-, defined as a fortis component; F- then combines with an otherwise lenis stem-initial consonant. This analysis avoids the fiction of a stem allomorph that entirely lacks its initial consonant; it thus may better reflect the actual phenomena involved, inasmuch as the stem-initial consonant is, in point of fact, still present as to all its features except that of fortisness. Such an analysis makes it impossible to divide a form like -šiidži *cause to laugh* into a sequence of allomorphs that are coterminous with stretches of segmental phonemes; thus it would be considered a type of portmanteau morph whose morphemic components are identifiable on a componential rather than a phonemic level. For the forms set up with the other C- allomorphs of morpheme 11, a similar analysis could be made. However, for these, the prefix allomorphs would not be easily statable in terms of components; when these allomorphs appear, the original stem-initial consonants is no longer present in any recognizable form but has been replaced by an entirely different segmental phoneme. Thus the forms described in the text as containing C_1-, C_2- etc., would have to be considered as portmanteau morphs or else as a sequence of stem preceded by a replacive allomorph which consists of a process of change rather than a stretch of segmental phonemes. (For replacives, see E. A. Nida, op.cit.) None of the suggested analyses in terms of morphs is entirely satisfactory; this is one of the cases where we probably need to develop techniques for statement in terms of process rather than in terms of morph sequences."

ri-g-u?u-be (nií) *he puts (it) in* (35, 11, C, 93, Ob). l- appears in constructions beginning with 34: gu-l-u?u-be (nií) *he put (it) in* (34, 11, C, 93, Ob). nd- appears in class 50 constructions. Example with 51: tši-nd-u?u-be (nií) *he's going to put (it) in* (51, Ø31, 11, C, 93, Ob).

C_3- = k- ∞ g- ∞ dž- ∞ tš. k- appears in constructions beginning with 31: {-bi?ibi} *be dusted*: k-iibi-be (nií) *she should dust (it)* (Ø31, 11, C, 93). g- appears in constructions beginning with 32, 33, 35, 36, or 37. Example with 35: ri-g-iibi-be (nií) *she dusts (it)* (35, 11, C, 93, Ob). dž- appears in constructions beginning with 34: gu-dž-iibi-be (nií) *she dusted (it)* (34, 11, C, 93, Ob).

tš- appears in class 50 constructions. Example with 51: tši-tš-iibi-be (nií) *she is going to dust (it)* (51, Ø31, 11, C, 93, Ob).

C_4- = kw- ∞ b- ∞ l- ∞ nd-. kw- appears in constructions with 31: {-re?e} *go out*: kw-e?e-be (nií) *he should take (it) out* (Ø31, 11, C, 93, Ob). b- appears in constructions with 32, 33, 35, 36, or 37. Example with 35: ri-b-e?e-be (nií) *he takes (it) out* (35, 11, C, 93, Ob). l- appears in constructions with 34: gu-l-e?e-be (nií) *he took (it) out* (34, 11, C, 93). nd- appears in class 50 constructions. Example with 51: tši-nd-e?e-be (nií) *he's going to take it out* (51, Ø31, 11, C, 93, Ob).

The remaining allomorphs, except for ?-, likewise occur with a stem allomorph which lacks the initial consonant.

kw-: ri-ba?ki-be (štá?ani-beé) *she puts on (her blouse)* (35, C, 93, Ob); ru-kw-a?ki-be (bá?du?) *she dresses (the child)* (35, 11, C, 93, Ob).

dž- ri-bigeeta-beé *he returns* (35, C, 93); ru-dž-igeetá-bé (nií) *he returns (it)* (35, 11, C, 93, Ob).

ž-: ri-ru?uže-nií *it gets cut up* (35, C, 95); ru-ž-u?uže-be (nií) *he cuts (it) up* (35, 11, C, 93, Ob).

t-: ri-gi?inye-beé *he borrows* (35, C, 93); ru-t-i?inye-beé *he lends* (35, 11, C, 93).

?- gu-uti-beé *he died* (34, C, 93); bi-?-íti-beé *he killed* (34, 11, C, 93) (stem allomorphs discussed in **7.3**).

The most common type of alternation of stem shapes accompanying the non-causative vs. causative contrast, other than those types already described, is an alternation in presence and order of vowels and glottal stop: (1) VV in non-causative, V?V in causative: r-aasi-beé *he sleeps* (35, C, 93), ru-si-a?asi-be (lá?a) *he puts (him) to sleep* (35, 11, C, 93, Ob). (2) V?V in non-causative, VV in causative: ri-a?aša-nií *it comes loose* (35, C, 95), r-aaša-be (nií) *he pulls (it) loose* (35, Ø11, C, 93, Ob). (3) V? in non-causative, V?V in causative: r-a?gi-nií *it cooks* (35, C, 95), ru-g-a?agi-be (nií) *she cooks (it)* (35, 11, C, 93, Ob). (4) V?V in non-causative, ?V in causative: ri-u?utu-nií *it gets ground* (35, C, 95), ru-?-utu-be (nií) *she grinds (it)* (35, Ø11, C, 93, Ob).

A few stems vary in the vowel, principally /i/ ∞ /a/: ri-aaža-nií *it is paid* (35, C, 95), ri-g-iiže-beé *he pays* (35, 11, C, 93); ri-a?azi-nií *it is given out* (35, C, 95), ri-g-i?izi-be (nií) *she gives (it)* (35, 11, C, 93, Ob).

About two dozen neutral stems have been found in which the initial consonant alternates in construction with the different aspect prefixes, like the alternation in allomorphs C_1, C_3 and C_4 of morpheme 11. There is an additional set of consonants which is like C_4 except for the consonant which occurs in construction with morpheme 34 and class 50 morphemes. The allomorph distribution of aspect morphemes with these stems is more like that in the non-causative constructions than the causative, i.e. they all occur with one of the sets numbered 1, which occur most commonly with non-causative constructions with C stems. However, syntactically and semantically they are more like causative constructions. Because of this similarity and the similarity of form of the initial consonant changes to the consonant-changing allomorphs of causative morpheme 11, it is possible to consider these forms as

special uses of morpheme 11. It is possible that in earlier times they were matched by parallel non-causative forms, so that they might be called 'frozen' causative constructions. Examples, chosen from the additional (fifth) set of consonant changes: kwii-beé *he should sit down* (Ø31, N, 93); wa-bii-beé *he has sat down* (32, N, 93); za-bii-beé *he will sit down* (33, N, 93); gu-rii-beé *he sat down* (34, N, 93); ri-bii-beé *he sits down* (35, N, 93); ni-bíi-beé *he should have sat down* (36, N, 93); ka-bíi-beé *he is sitting down* (37, N, 93); tší-tií-beé *he is going to sit down* (51, Ø31, N, 93).

7.6. Morphemes of class 70 and 80 have only one shape except for automatic alternation between pe? and pe (75) and sií and si (71). These types of alternations are described and illustrated at the beginning of **7**.

7.7. Morpheme 91 {-e?} = ([-ya? ∞ -yá?] ~ [-á? ∞ -a? ∞ -a] ~ é?) ∞ (-R . . . -á?]. In addition, each of the shapes shown ending in ? in the formula has an automatic phonologically defined shape without the glottal stop, as described at the beginning of **7**.

-ya? ∞ -yá? appears with stems ending in /aa/ or /a?/; certain of both these types take -ya?, others of both types take yá?. The actual stem shape before -ya? always ends in /a?/; stems whose basic shape ends in /aa/ have a stem allomorph ending in /a?/: {-aa} *feel sorry for:* ri-a?-ya (la'abeé) *I feel sorry for (him)* (35, S, 91); stem {-aakanandá?} *be hot*: kay-aakanandá?-ya? *I'm hot* (37, S, 91). The actual stem shape before yá? always ends in /aa/; stems whose basic shape ends in /a?/ have an allomorph ending in /aa/: stem {-za?} *make*: ru-zaa-yá? *I make* (35, S, 91); stem {-zaa} *go for a walk*: ri-zaa-yá? *I go for a walk* (35, S, 91).

-a? ∞ -a ∞ -á? appears with stems ending in back vowels other than the sequences /aa/ or /a?/.

-a? appears with the stem {-ze?etšu} *fold*: ru-ze?etšu-a? *I fold* (35, S, 91).

-a appears with the stems {-sinda?a} *throw* and {-zugwa?a} *stand up*: ru-sinda?-a *I throw* (35, S, 91); ru-zugwa?-a *I stand up* (35, S, 91).

-á? appears with other stems of the phonological type named; stem allomorphs themselves, mostly defined phonologically, occur and are here shown in terms of postulated isolated shapes and fusions resulting therefrom. All illustrations are given with prefix 31 unless otherwise indicated.

Stem-ending /oo/ + -á? > /aoá?/: one stem {-oo} *eat*: r-ao-á? *I eat.*

Stem-ending /o?o/ or /u?u/ + -á? > -ua?á: stem {-o?o} *get fat*: ri-rua?-á? *I get fat*; stem {-u?u} *be* (locational): n-ua?-á? *I am* (21, S, 91).

Stem-ending /Cu/ + -a? > /Cwá?/: stem {-kwa?agu} *go hunting*: ku-kwa?ágw-á? *I go hunting.*

Stem-ending /Cuu/ + -a? > /uaá?/ or /uá?/, in different verbs: stem {-ruu} *cough*: ru-rua-á? *I cough*; stem {-suluu} *begin*: ru-sulu-á? *I begin.*

Stem-ending /Ca/ + -á? > /Cá?/: stem {e?eda} (allomorph -nda) *come*: r-end-á? *I come.*

Stem-ending /Ca?a/ + -á? > /Ca?á?/: stem {-ra?a} *scrape*: ri-ra?-á? *I scrape.*

Stem-ending /?Ca/ + -á? > /aaCá?/: stem {-ga?na} *touch*: ri-gaan-á? *I touch.*

-á? also appears with two stems which in other constructions end in the vowel /e/ but which in constructions with 91 occur in a shape ending in /a/: compound stem {-e?edaneé} *bring*, with allomorph -endania: r-endania-á? *I bring*; stem {-ee} *go*, with allomorph -ia?: ri-a-á? *I go.*

-é? appears with stems ending in a front vowel. Stem allomorphs occur and are here shown. (Illustrations given with prefix 35).

Stem-ending /Ci/[16] + -é? > /Cé?/: stem {-aabi} *say*: r-aab-é? *I say.*

[16] C in these formulas refers to any consonant other than /w/, since combinations with /w/ pattern differently.

Stem-ending /Cii/ + -é? > /Cieé?/: stem {-$C_x$ii} *sit down*: ri-bie-é? *I sit down.*

Stem-ending /Ci?i/ + -é? > /Cie?é?/: stem {-bi?i} *go home*: ri-bie?-é? *I go home.*

Stem-ending /Ci?/ + -é? > /Cieé?/: stem {-zi?} *buy*: ri-zie-é? *I buy.*

Stem-ending /wi?/, /wi?i/ or /wii/ + -é? > /we?é?/: stem {-džwi?} *burn*: ri-džwe?-é? *I burn myself*; stem {-zwi?i} *chew*: ru-zwe?-é? *I chew*; stem {-kwii} *set down*: ru-kwe?-é (nií) *I set (it) down.*

Stem-ending /e/ + -é? > /é?/: stem {-aaze} *bathe*: r-aaz-é? *I bathe.*

-R . . . á? appears in verbs whenever morpheme 63 or a morpheme of class 70 is present. The first part of the discontinuous allomorph, symbolized by R, is one of the allomorphs (-yá? ∞ -ya?) ~ (á? ∞ a? ∞ -a) ~ é?, and immediately follows the stem; the second part follows the 63 or 70 morpheme. The factors of phonological and morphological conditioning operate (in the part represented by R) as stated above for allomorphs. In the number formulas a morpheme number in italics corresponds to the first part of the discontinuous allomorph. Examples: ké-ri-zaa-yá-di-a? *I don't walk* (61, 35, S, *91*, 63, 91); ri-á?-ya-ru-á? *I still feel sorry* (35, S, *91*, 73, 91); ku-ze?etšu-a-ru-á? *I am still folding* (37, S, *91*, 73, 91); ke-nu-zugwa?-a-di-á? *I didn't stand up* (61, 36, S, *91*, 63, 91); ru-rua-á-ru-á? *I still cough* (35, S, *91*, 73, 91).

7.8. Morpheme 92 {-lu?} = (-lu? ~ -lo?) || ([-u? || -u. . u?] ∞ [-u? ∞ (-o? || -u . . . o?)]). In addition, each of the shapes ending in ? alternates phonologically with a shape without the glottal stop (see **7.7**).

The alternation between the two parenthetic groups of allomorphs is free with nearly all verb stems; e.g. {-aaNda} *reach*: r-aaNda-lu? || r-aaNd-u? *you reach* (35, S, 92). A very few stems, composed entirely of vowels, appear with an allomorph of the first group only; e.g. {-aá} *feel sorry for*: ri-aá-lu (la?abeé) *you feel sorry for* (*him*).

Of the allomorph group (-lu? ~ -lo?), -lo? appears when the stem immediately precedes 92 and contains the vowel /o/; -lu? appears elsewhere. Example with -lo?: stem {-oo} *eat*: r-oo-lo? *you eat* (35, S, 92) Example with -lu?: stem {-eene} *understand*: ri-eene-lu? *you understand*; stem {-oo} *eat* with morpheme 63: ké-r-óo-dí-lu? *you don't eat* (61, 35, S, 63, 92).

Of the allomorph group ([-u? || -u . . . u?)] ∞ [-u? ∞ (-o? || -u . . . o?)]), the first bracketed group appears when a class 70 morpheme is present. In this environment -u? alternates freely with -u . . . u?, in which the first part of the discontinuous allomorph precedes the class 70 morpheme. Example with stem {-ka?a} *get*: tši-ka?a-ko-ú (ni-lá) || tši-ko?o-u-ko-u (ni-lá) *are you going to get it right away* (51, 31, S, 76, 92, Ob, 101) || (51, 31, S, *92*, 76, 92, Ob, 101).

The second bracketed group appears when no class 70 morpheme is present. (-o? || -u . . . o?) appears, with its members in free alternation, when morpheme 63 is present. Examples with stem {-$C_x$iiba} *sew*: ké-kiiba-di-o? || ké-kiib-u-di-o? *don't sew* (61, S, 63, 92) || (61, S, *92*, 63, 92). -u? appears when morpheme 63 is absent: ké-ri-een-u? *you don't understand* (61, 35, S, 92). Note that -u? appears in both bracketed groups, inasmuch as it alternates freely with -u . . . u and under morphologically defined conditions with (-o? || -u . . . o?).

Various alternations of shape of stems occur when combined with -u? or the first part of discontinuous allomorphs -u . . . u? or u . . . o?. These may be described in terms of the stem-ending, with class division in some cases.

Stems ending in /V/ show two types of alternation when morpheme 92 occurs. Certain of these stems occur in a shape without their final vowel: stem {-eete} *go down*: bi-eet-u-lá *did you go down?* (34, S, 92, 101). Other such stems occur without their final vowel but contain ? in place of one non-final vowel of a cluster of two like vowels: stem {-eene} *understand*: bi-e?n -u-lá *did you understand?* (34, S, 92, 101).

Stems ending in /iʔi/, /eʔe/ or /oʔo/ remain the same: stem {-sigiʔi} *deceive*: ru-sigiʔi-uʔ *you deceive* (35, S, 92); stem {-reʔe} *go out*: bi-reʔe-uʔ *you went out* (34, S, 92); stem {-roʔo} *get fat*: ri-roʔo-uʔ *you are fat* (34, S, 92).

Stems ending in /aʔa/ assume a shape with the vowels /oʔo/ in place of /aʔa/: stem {-yaʔa} *dance*: ru-yoʔo-úʔ *you dance*.

Stems ending in /V?/ lose the ?: stem {-ziʔ} *buy:* ri-zi-uʔ *you buy* (35, S, 92).

Stems ending in /ii/, /ee/, or /oo/ appear with only one of the two vowels: compound stem {-eʔedaneé} *bring*: b-eʔedane-ú (nií) *you brought* (*it*) (34, S, 92, Ob).

Stems ending in /aa/ appear with one vowel /o/: stem {-laa} *escape*: bi-lo-uʔ *you escaped* (34, S, 92).

Morphemes 73 {-ru}, 74 {-gaa} and 76 {-ka} have allomorphic variation when preceding -uʔ or the second part of discontinuous allomorphs -u . . . uʔ. Examples with each of these morphemes follow: 73: kay-úuni-ro-u (ni)-lá ‖ kay-úʔn-u-ro-u (ni)-lá *are you still doing it?* (37, S, 73, 92, Ob, 101) ‖ (37, S, *92*, 73, 92, Ob, 101). 74: (ži) gú-úní-go-uʔ-yaʔ (*what*) *are you going to do meanwhile?* (ži, 31, S, 74, 92, 102). 76: g-úuni-kó-u (nií) ‖ g-úʔn-u-kó-u unií) *you should do it right away* (31, S, 76, 92, Ob) ‖ (31, S, *92*, 76, 92, Ob).

7.9. Morphemes 93, 94, and 95 occur in only one shape in each case, except for the allomorphs resulting from automatic loss of the second vowel, as described at the beginning of **7.**

Morphemes 97, 98, and 99, listed with shapes having two /u/ vowels, also have allomorphs resulting from automatic loss of the second vowel, and have additional allomorphs with vowels of /o/ quality; the alternation between the /u/ allomorphs and the /o/ allomorphs is definable in the same terms as the alternation between the allomorphs -luʔ and -loʔ of morpheme 92 above. Examples of each of the above morphemes, with its allomorphs, follow:

Morpheme 93 {-beé} = -beé ∼ -be: ri-ziʔ-beé *he buys* (35, S, 93); ri-ziʔ-be (nií) *he buys* (*it*) (35, S, 93, Ob).

Morpheme 94 {-meé} = meé ∼ -me: r-eʔ-meé *he* (animal) *drinks* (35, S, 94): r-eʔ-me (nií) *he drinks* (*it*) (35, S, 94, Ob).

Morpheme 95 {-nií} = -nií ∼ -ni: ri-žeelé-nií *it comes open* (35, S, 95); ri-žeelé-ni (yáaNa) *it comes open* (*now*) (35, S, 95, yaaNa).

Morpheme 97: {-nuú} = (-nuú ∼ -nu) ∼ (-noó ∼ -no): ri-uʔú-nuú *we* (inclusive) *go* (35, S, 97); ri-uʔú-nú (yáaNa) *we go* (*now*) (35, S, 97, yaaNa); za-dóʔ-noó *we will eat* (33, S, 97); za-dóʔ-no(yáaNa) *we will eat* (*now*) (33, S, 97, yaaNa).

Morpheme 98 {-duú} = (-duú ∼ -du) ∼ (-doó ∼ -do): ri-uʔú-duú *we* (exclusive) *go* (35, S, 98); ri-uʔú-dú (yáaNa) *we go* (*now*) (35, S, 98, yaaNa); za-dóʔ-doó *we will eat* (33, S, 98); za-dóʔ-do (yaáNa) *we will eat* (*now*) (33, S, 98 yaaNa).

Morpheme 99 {-tuú} = (-tuú ∼ -tu) ∼ (-toó ∼ -tó): zi-ee-tuú *you* (pl) *will go* (33, S, 99); zi-ee-tu (yaáNa) *you will go* (*now*) (33, S, 99, yaaNa); z-oo-toó *you will eat* (33, S, 99); z-oo-to (yáaNa) *you will eat* (*now*) (33, S, 99, yaaNa).

Several types of stem alternations occur with morphemes 97 and 98. Stems with shape including /VʔV/ with only low tones occur with an allomorph including /Vʔ/ in constructions with 97 or 98: stem {-ziʔidi} *learn*: ri-ziʔdi-duú *we learn* (35, S, 98); stem {-roʔo} *get fat*: ri-roʔ-noó *we get fat* (35, S, 97). (Stems with shape including /VʔV/ but with high tone on one of the vowels do not have this alternation: stem {-sáʔana} *leave*: bi-sáʔana-du(nií) *we left* (*it*) (34, S, 98, Ob).

Stems with shape including /Vʔ/ with low tone occur with the shape /VV/ in constructions with 97 or 98: stem {-ziʔ} *buy*: ri-zií-duú *we buy* (35, S, 98). (Stems with shape including /Vʔ/ with high tone do not have this alternation: stem {-eʔ} *drink*: ri-déʔ-duú *we drink* (35, S, 98).

Stems with shape including /ʔV/ occur with a shape without the vowel following the

ʔ in constructions in 97 and 98: stem {-ʔuya} *see*: ru-ʔya-duú *we see* (35, S, 98).

7.10. Morpheme 96 {-ʔ} = (-ʔ ∞ V̄ ∞ ∅) (V̄ is a high tone vowel identical in quality with the stem-final vowel). When morpheme 96 is utterance final and immediately follows the stem, the alternation depends on the choice of verb stem: {-eʔeda} *come*: b-eʔeda-ʔ *he, she* or *it came* (subject already known from context) (34, S, 96); stem {-aapa} *have*: r-aapa-á *he, she* or *it has* (34, S, 96); stem {-ee} *go*: ri-ee *he, she* or *it goes* (34, S, 96).

When morpheme 96 is not final or is separated from the stem by another morpheme, the zero allomorph occurs regardless of which allomorph would otherwise appear. Stem {-eʔeda} *come*: b-eʔeda (órakeé) *he, she* or *it came* (*then*) (34, S, 96, órakeé); b-eʔeda-sií *he, she* or *it just came* (*that's all*) (34, S, 71, 96). Stem {-aapa} *have*: r-aapa (nií) *he, she* or *it has* (*it*) (34, S, 96, Ob); r-aapa-si (nií) *he, she* or *it just has* (*it*), (*that's all*) (35, S, 71, 96, Ob). Stem {-ee} *go*: ri-ee (yáaNa) *he, she* or *it goes now* (35, S, 96, yaaNa); ri-ee-sií *he, she* or *it just goes* (35, S, 96, 71).

8. There are at least three further steps which will have to be taken to complete the analysis of Isthmus Zapotec verb structure, but which have been considered to be beyond the scope of the present paper.

First, there is an extensive pattern of tonal alternation in stems which has not as yet been thoroughly analyzed.

Second, there are various alternations of stem form that are limited to a small number of stems and which do not constitute patterns of distribution as well defined as most of those discussed here. The present paper includes examples of each kind of alternation but not all of the details.

Finally, there remains to be made a complete classification of verb stems in terms of their alternations in shapes and the alternants of the bound morphemes which they call for.

PHONEMES OF THE HOPKINS (BRITISH HONDURAS) DIALECT OF ISLAND CARIB

DOUGLAS TAYLOR

DOMINICA, BRITISH WEST INDIES

1. Phonemes and syllable-structure
2. Positions of occurrence and phonetic values
3. Reservations and problems

1.1. I find the following phonemes in this dialect of Island Carib: p, b, f, m; t, d, s, n; r, l; c; k, g, h; e, o, u, i, a; V̨ (nasalization of vowels), V̄ (stress). Their minimally distinctive features may be tabulated as below.

	p	b	f	m	t	d	s	n	r	l	c	k	g	h	e	o	u	i	a
Vocalic	—	—	—	—	—	—	—	—	x	x	—	—	—	—	x	x	x	x	x
Consonantal	x	x	x	x	x	x	x	x	x	x	x	x	x	x	—	—	—	—	—
Compact	—	—	—	—	—	—	—	—			x	x	x	x	—	—	—	—	x
Grave	x	x	x	x	—	—	—	—			—	x	x	x					
Nasal	—	—	—	x	—	—	—	x											
Continuant	—	—	x		—	—	x		—	x		—	—	x					
Voiced	—	x			—	x						—	x						
Diffused															—	—	—	x	
Flat															—	—	x		
Grave															—	x			

Nasalized and oral, stressed and unstressed vowels are distinguished by the presence or absence of the features of nasality and (or) stress.

For the consonants, the feature of compactness versus its absence opposes /k, g, h, c/ to /pt, bd, fs, mn/, as contrasted in káta *thing*, ka *who or what?* but páta *prickly pear* (*Opuntia*), ta *let her say*; gágu *having eyes* and égei *shoulder*, but bábu *thy bones* and édei *bottom*; áhara *to agree*, but áfara *to beat or kill*, and ásara *to get up*; cágu *chewed*, but mágu *eyeless*, and nágu *my eye(s)*.

The feature of gravity versus its absence opposes /pk, bg, fh, m/ to /t, d, s, nc/, as in páta *prickly pear* and káta *thing*, but táta *she drinks*; bé-bai *ignite it!* and égei *shoulder*, but dé-bai *'dunk' it!* and édei *bottom*; áfara *to beat or kill* and áhara *to agree*, but ásara *to get up*; mágu *eyeless*, but nágu *my eye(s)* and cágu *chewed*.

The feature of nasality opposes /m, n/ to /pbf, tds/, as in máta *bloodless* and múa *land*, but páta *prickly pear*, búa *enclosed*, fúa *emerged*; níu *my body-hair* and nų *to or for me*, but tíu *her body-hair*, díu *snipe* (*a bird*), tų *to or for her*, sų *all or every*.

The feature of continuance versus interruption opposes /f, s, h, l/ to /pb, td, kg, r/, as in fádara *joined* and úfię *ghost*, but pátara *slapped* and úbię *home*; ásoha *to sting* and ésera *to pour out*, but átoha *to pluck* and édera *to 'dunk'*; ha *they here*, but ka *who or what* and ga, an assertive particle; lúhali *it has swollen* and líli *his tail*, but rúhali *he has given or put* and líri *his name*.

The feature of voice versus its absence opposes /p, t, k/ to /b, d, g/, as in páta *prickly pear* and pų́gua *fart*, but báta *thou drinkest* and bų́gua *to or for thyself*; tíu *her body-hair*, but díu *snipe*; káta *thing*, but gáta *bloody*.

For the vowels, the feature of compactness opposes /a/ to /e, o, u, i/, as in lála *his*

seat, but lélele *its flash*, lólo *crazy*, lúlu *swollen*, líli *his tail*. The feature of diffuseness opposes /i/ to /e, o, u/, as in líri *his name*, adíga *to catch* (*as on hook and line*), ári *tooth or teeth*, but lére *his strength*, adóga *to do or make*, áru *edge or border*. The feature of flatness (lip-rounding) opposes /u/ to /e, o/, as in dú-bai *burst it!* but dé-bai *'dunk' it!* and dó-bai *squash it!*. The feature of gravity opposes /o/ to /e/, as in tógo *her genitals*, but tége *her shoulder(s)*. Nasalization opposes /ę, ǫ, ų, į, ą/ to /e, o, u, i, a/, as in lę *his genitals*, but lé *when*; dǫ-bai *ring it!* (*of bell or clock*), but dó-bai *squash it!* háų *to or for them*, but háu *on, about, or with them*; tį *her fruit*, but tí, essive particle; dą *time or weather*, but dá *mother* (*form of address*). Stress versus its absence opposes V́ to V, as in némeri *my road*, but neméri *my way* (*of doing things*); íbiha *to cut*, but ibíha *to get* (*receive*); álugurá-ba uátu *get warm at* (*the*) *fire!* but alúgura bá-nų *sell to me!* áfara *to beat or kill*, but afára (da) *to unbind*.

If other oppositions are present, my data are insufficient to reveal them. This applies particularly to such features as secondary stress (or stresses), juncture and pitch; the difference between primary and other possibly distinctive stresses being usually much more perceptible than that between the latter and unstressed syllables. However, while juncture and intonation were not investigated systematically, some characteristics were noted and marked by ordinary punctuation; so, by a comma: pause within the sentence without change of tone (clause); by a full stop: end of the sentence with falling tone (statement); by a question-mark: end of the sentence with falling-rising pitches on the last two syllables (specific question); by an inverted question-mark: end of the sentence with level tone (question requiring a yes-or-no answer); by an exclamation-mark: end of the sentence with rising-falling pitches on the last two syllables (demand); and, by an inverted exclamation-mark: end of the sentence with long-drawn rising tone (exclamation).

1.2. A syllable may consist of any one of the following: V ą́ (sa) *what* (*about*)*?*; VVV uáiriau *old woman*; VV áu *I*, *me*; iagúma *punt-pole*; CVV háo *ant*, niráo *my child*; CV ka *who or what*; CCV gró-bai *bite him!*; VC og!—exclamation of astonishment; CVC abástera *to get baptized*. Initial CC occur only before a stressed vowel, and are broken up with change of stress or in deliberate speech. (C)VC does not occur before pause except in an exclamation—that is, with long-drawn rising tone.

2.1. Distribution and values of the consonants. (From here on, I shall revert to the still usual and for-me-more-familiar articulatory terms).

2.11. All consonants occur before all vowels as syllable-initial. However, apart from obvious recent loans, /p, k/ have been found only in forms which begin with the syllable containing one of these phonemes, and which may occur after pause (silence)—that is to say, presumably, only as word-initial. They have this position in two thirds of all their occurrences in my data; while elsewhere the p/b and k/g oppositions appear to be neutralized. Even in the position of word-initial, /p, k/ have been found in not more than six native morphemes each. So, for example, sísi *six*, gádoro *four*, and ísigalę *money* (but also known as the name of an old coin worth an eighth of a dollar) are members of the compounds, sísiskalę *seventy-five cents*, gadískalę *fifty cents*; while Spanish sobar has provided the model for the stem of asúpaha ~ asúbaha *to massage*.

Consonant-clusters are rare; those which may occur after pause being limited to /f, s/, or a voiced stop plus /r/ or /l/, and always being followed by a stressed vowel. Medial clusters are more common, especially in recent loans, and include, besides the foregoing, /sp ~ sb, st ~ sd, sk ~ sg, ns, rd, rs/. Also geminate clusters—at least in the cases of /tt, nn/—occur

medially, where they arise from the syncope of an unstressed vowel. These geminate CC differ from phonetically long consonants (v. **2.12** below) in that they are separately articulated; so, for example, mátatti *he doesn't or cannot drink*, from mátadi *unable to drink* plus -ti, is not homonymous with mátati *he is bloodless* or *he doesn't bleed*, from máta *bloodless* with the same suffix.

Phonetically, forms containing the sequences, V̨bV, V̨dV, V̨cV, V̨gV vary freely with others in which the nasalized vowel is replaced by its oral counterpart followed by a nasal consonant homorganic with the stop or affricate; but since neither the palatal nor the velar nasal is ever distinctive in this language, labial and apical nasals in these positions may also be considered as contextual variants of vowel nasalization. In support of this interpretation, it may be said that these phonetic clusters differ from all others in the language in that they are never broken up; whereas we find, for example, besides frígua *eloped*, more deliberate furígua; and besides mablécu *mosquito-larva*, more deliberate mabulécu; (cf. also such loanwords as básigidi *basket*, murúsu *piece*, from Fr. morceau, and ligílisi *church*, from Fr. l'église).

Except as stated under **1.2** above, no consonant occurs before pause.

2.12. Apart from what follows, consonant phonemes have the usual phonetic values of the symbols assigned to them; all other variation that I could perceive being slight, and, so far as I could determine, haphazard.

/b, f, m, t, d, s, n, r, l, g/ have phonetically long variants which occur in post-stress syllables,—especially when these are followed by pause. In stressed syllables, /p, t, k/ are occasionally aspirated,—especially when they occur after pause; intervocalically, /p/ varies freely with /b/, and /k/ with /g/. /c/ varies from a hushing sibilant, [š], in unstressed syllables, to a palatal affricate, [č], in stressed syllables; most speakers employ the latter variant in deliberate speech for all positions. /c/ is occasionally aspirated under the same conditions as are /p, t, k/. Although voicing is not a distinctive feature of these phonemes, /m, n, r, l/ were always heard as voiced, /f, s, c/ as voiceless. On the other hand, /h/, which seems to vary freely from a weak aspiration to a moderate velar spirant (the latter being most frequent in those positions where the phonetically long consonants are heard), has, with some but not all speakers, voiced variants which occur only in positions between vowels. With a very few old people, /f/ is bilabial, but with the vast majority of speakers it is labio-dental. /r/ varies from an apical flap to a mild trill (the latter being more usual in post-stress syllables).

2.2. Distribution and values of the vowels.

2.21. Every vowel occurs as a syllable; and every vowel occurs as syllable-final with syllabic peak after any consonant; (see now, however, what is said above, under **2.11**, concerning /p, k/).

The following vowel-clusters, both with and without added nasalization, have been found to occur as monosyllables, under definable conditions of environment, with syllabic peak on the lower vowel or on the second of two having the same height. Two dubious clusters are indicated by parentheses, and another, whose phonemic though not phonetic status is debatable, by square brackets. These will be discussed below, under sections **2.22.34** and **2.22.32** respectively.

Geminate vowel clusters occur, but always constitute two syllables, in which the first vowel always bears stress, the second

First Element	Second Element								
	e	o	u	i	a	ei	ai	au	ao
e			x	x	(x)				
o				x	(x)				
u	x	x		x	x	x	x	x	
i	x	x	x		x	x	x	x	x
a	[x]	x	x	x					

being heard as an echo-vowel. All other vowel sequences are di- or tri-syllabic

2.22. In positions of maximum contrast—that is, when bearing (primary) stress and preceded and followed by a consonant or by pause—the vowel phonemes have the following phonetic values: mid front unrounded [e], as in tége *her shoulder(s)*; mid to high back unrounded [ë] ~ [ï], as in tógo *her genitals*; high back rounded [u], as in túgubu *her body*; high front unrounded [i], as in tígiri *her nose*; and low central unrounded [a], as in tanága *her back*, tágani *her enemy*. Nasalization is strong in these positions, and may sometimes approximate, before pause, to a velar nasal [ŋ] following the vowel, whose timbre is not, however, otherwise modified; so: [ẽ], as in dẹ́hali *he has raged (against)*; [ɛ̃], as in dọ́hali *it has rung or struck (of bell or clock)*; [ũ], as in tú̧ *to or for her*; [ĩ], as in tį́ *her fruit*; and [ã], as in dá̧ *time or weather*.

So far as I could tell, the only noteworthy variation in the timbre of a vowel phoneme in these positions is that of /o/, which varies—freely or idiolectically, it would seem—from mid to high back unrounded; (see now what is said under **2.22.51–52** below).

In other positions, each vowel has several additional allophones. These are shown under their respective phonemes, which are listed in order of decreasing complexity of the combinations into which they enter, (v. **2.21** above). In general, unstressed vowels are usually weak, and when final (i.e., before pause) are always more or less devoiced. Devoicing is most perceptible when stress falls on the immediately preceding syllable, and is more noticeable after a voiced consonant or another vowel than after a voiceless consonant. Since it depends upon context, this final devoicing will not be shown in the phonetic symbols employed below. Unstressed vowels in vowel-sequences may be fully syllabic (unmarked); semi-syllabic—that is, very short and sometimes (especially when preceded by pause) partly devoiced, [V̆]; or non-syllabic—that is, semi-vowels with or without friction, [j, w, y] or [V̯]. Degress of nasalization are largely dependent upon stress; both these features are discussed separately, under **2.22.7** and **2.22.6** respectively.

2.22.11. /i/, when unstressed between consonants, is shorter and laxer, and may be partly devoiced; so, lamádina [lamádĭnə] *I'm hungry*.

2.22.12. When it occurs unstressed as second element in one of the two-vowel clusters, ei, oi, ai, this phoneme is heard as non-syllabic [i̯]; so, bebéido [bĕbé̯idə] *gale*,—with which contrast báidi [bø̯idi], the place-name, (*Seine*) *Bight*; sogóinali [sëgë̯inəli] *bygone time*; áiga [é̯igə] *to eat*; ágai [ágɛ̯i] *container*.

2.22.13. Whether oral or nasalized, stressed or unstressed, /i/ is usually (but not always; see now **2.22.42**) followed by a semivowel off-glide (here written on the line for convenience), or is itself heard as a semivowel, whenever—except as qualified under **2.22.25** below—it precedes another vowel. If the latter is stressed—in an iV̆-sequence, that is, the sound of /i/ is shorter, laxer, and when preceded by pause is often partly devoiced until the onset of the glide. If neither vowel is stressed, it becomes almost (after certain consonants) or quite (in all other cases) a semivowel, [j]. Examples: híu [híju] *prickles*, i̯u [íju] *high*, i̯o [íjë] *hymen*, biáua [bĭjáwə] *thy image or reflexion*, hi̯áru [hĭ̆járu] *woman*, iódoti [ĭjĕ́dĕti] *he went*, iúri [ĭjúri] *tobacco*; bídiuma [bíd(ĭ)jumə] *thy moustache*, niurú-ba [njurúbə] *sit down!* ioródo [jërĕ́d·ë] *crested humming-bird*, iamádi [jamádi] *basket (type of)*,—with which contrast biámadi [bĭjámadi] *thy basket*.

2.22.21. /u/, when unstressed between consonants, is likewise shorter and laxer, and may be partly devoiced; so, buíduti [bŭ̆yídŭ̆ti] *he/it is good*.

2.22.22. When it occurs unstressed as second element in one of the two-vowel clusters, eu or au, /u/ is heard as non-

syllabic [u̯] or, after /a/, as non-syllabic [o̯]; the latter sound being more common in this position even where the a-sound of /a/ is not retained, (for /a/, v. under **2.22.3** below). So, éu [éu̯] *male genitals*, áu [áo̯] *I/me*, iáu [ijáo̯] *uncle*, báu [bóo̯] ~ [bóu̯] *on, about, or with thee*.

2.22.23. Furthermore, this phoneme has the value of syllabic [o] between /b/ and a following non-final, unstressed /a/, as in tábuagią [tábŏŏgjæ̃] *she is cooking*, abúacagua [abó(w)ŏšagŭwa] *to put inside, to enclose*,—whose free stem is búa [bú(w)ə] *enclosed*; and, in free variation with [u] when unstressed after any voiced consonant, as in luágu [lŭwágu] ~ [lŏ(w)ágo] *upon or about him/it*.

2.22.24. What has been said under **2.22.13** concerning /i/ applies, *mutatis mutandis*, also to /u/ in these positions. However, in the clusters ui and ue, the short, lax, semi-syllabic allophone of /u/ is fronted [ŭ], and the semivowel off-glide and semivowel variant in these positions are heard as high front rounded [y]. Examples: úa [úwə] *no*, úi [úwi] *meat*, uátu [ŭwát·u] *fire*, uíra [ŭyírə] *calabash* (*Crescentia cujete*), uéue [ŭyéye] *tree*, dáua [dáwə] *chalk*, uogóri [wëgéri] *man*, uagábu [wagábu] *post*,—with which contrast buágabu [bŭwágabu] *thy post*.

2.22.25. Whenever /i/ and /u/ are contiguous in a sequence of three or more vowels, (iuV, uiV, Viu, Vui), the second of which is unstressed, this latter is non-syllabic, and the first vowel—though it be /i/ or /u/—is not followed by its own semivowel off-glide. Examples: híuarutí [híwərutì] *he's thievish*, iuáni [iwán·i] *heart-soul*, ugúie [ugŭje] *present time*, gųiáro [gŭjárë] *yesterday*, láhuia húia [láhujahújə] *rain is pouring down*, áhuiuhá [áhujuhà] *to troll* (*for fish*), huiúgua [hujúgwə] *across*, siríuia [siríyijə] *cast-net*, liufe [líyíje] *his dirt*, sáiu [sáĭju] *sacking*, sáiua [sáĭwə] *basket* (*type of*), gáuie [gáu̯je], *pipe* (said to be the old name for). It is possible that in the last two examples, where we have a combination of Viu with iuV and of Vui with uiV, there may be some friction of both high vowels, (so, [sájwə] and [gáwje]), but both words are essentially disyllabic. On the other hand, in cases where speakers are not uniform as to stress (v. **2.22.6**), we get varying syllabicity; so, úiari [újæri] *kind(s) or sort(s)* is stressed by some as uíari, thus acquiring another syllable, [ŭyíjæri].

2.22.31. /a/, when unstressed, is shorter and laxer, and except after /h, k/ (where the lower sound is retained) is usually raised to the neighbourhood of schwa when it occurs between consonants in post-stress syllables, or as final (before pause); so, áragodá [árŏgëdà] *to seize or catch*, (with which compare ragó [ragé] *caught*); dúna [dún·ə] *water*.

2.22.32. In the so-called falling dipthongs, ai, au, ao, /a/ is usually heard as [ɛ], [ɔ], and [ʌ] respectively; as in áiga [éi̯gə] *to eat*, sé-nai [sénɛi̯] *let me pour out masc.-it*, áuga [ɔ́o̯gə] *to call* (*summon*), sé-nau̯ [sénɔo̯] *let me pour out fem.-it*, niráo [nirʌ́i̯] *my child*, arónao [arénʌi̯] *arm(s) or wing(s)*,—with which compare garónati [garénəti] *he has arms*. However, after /k, g, h/, and in isolated vowel-clusters containing au or ao, the a-sound of /a/ is often retained, as in háu-na [háo̯nə] *let me eat!* (i.e., imperative "make I eat", as informants translate), háo [háe̯] *ant*, áu [áo̯] *I/me*, iáu [ijáo̯] *uncle*. And since [ae̯] is heard only in these latter positions, as in [háe̯bə] *go ye away*, [hagáe̯] *where is masc.-it or he?* (with compare hagáų [hagáõ̯] *where is fem.-it or she?*), we must probably assume that the e/i opposition is neutralized in these positions,—in other words, that there is partial overlapping.

2.22.33. In the oral vowel clusters, ia and ua, however accented and except as qualified under **2.22.23** above, the a-sound of /a/ is usually retained; although some speakers habitually front it in the former cluster to [æ], as in guríara [guríjærə] *dugout canoe*, and back it in the latter to [ɑ], as in luagu [lŭ(w)águ] *upon or about him*. In the nasalized counterparts of these clusters, however, raising and fronting or

backing of the syllabic vowel is general and more marked, as in tábuagiã [tábŏ̆gjæ̃] *she is cooking*, uą́uao [wɔ̃́wʌɪ̃] *younger brother* (form of address employed by women to younger men generally).

2.22.34. Such variants of /a/ as shown in the foregoing examples suggest a solution to one of the hardest problems in the phonology of this language. In just two forms, the sounds [ɔ] and [ɛ] occur before pause, and with length (as I hear it); these are: [tɔ·] *she here, this fem.-one, or fem.-this*; and [lɛ·] *he here, this masc.-one, or masc.-this*. Elsewhere, neither of these sounds occurs except in vowel clusters, where they can be shown to be variants of /a/; and to accord them independent status would complicate the morphemics of the language very considerably. Nor would the setting up of [ɔ] as a phoneme facilitate the writing of such foreignisms (undigested loanwords) as Eng. toe or Sp. no, in which I always heard [ɔu̯] or [ou̯], even should such a pronunciation as [no·] be attested in subsequent data: (however, see now what is said about the status of [o] under **3.1** below). On the other hand, the retention of [túha) and [líha] as the ceremonial equivalents of these two colloquial forms (each of which contains, nevertheless, two morphemes) lends some excuse, if not support, for regarding [tɔ·] and [lɛ·] as containing vowel-clusters. Hitherto, I have written these forms as "tùa" (contrasting with táu [tɔ́u̯] *on, about, or with her*) and "lèa" (contrasting with le [le] *when*) respectively. However, the setting-up of a new accent is no simpler than setting up a new phoneme; besides which, syllabic peak is on the lower vowel in every other vowel-cluster, and the sequence ua is equivalent to [ɔ·] in none of its attested occurrences. I therefore propose to interpret these uniquely refractory forms as toa and lea respectively (toá and leá, where they bear stress), in spite of the fact that the sequences oa and ea occur, phonemically, nowhere else, and although this choice involves the neutralization, in this one instance, of the o/u opposition, (/o/ being distinguished from /u/ by absence of lip-rounding).

2.22.41. /e/, when unstressed, is shorter and laxer, as in leskuela [lĕskwel·ə] *school*. I believe the sound here written [ĕ] to be closer than the ɛ-sound of /a/; but even if that should prove not to be the case, the consequent overlapping would be only partial; [ɛ] then belonging to /a/ only and always when heard in contiguity with an allophone of a higher and fronter vowel.

2.22.42. In the vowel-clusters, eu, ei, ue, ie, /e/ is always syllabic, with the value of [e]. Non-syllabic [e̯], in the phonetic cluster [ae̯], has been assigned to /i/, since [ae̯] always varies—freely or idiolectically—with [ɛi̯], as in [hagáe̯] ~ [hagéi̯] *where is he/it*, (although the converse is not true); while in ea, as postulated above, it is "fused" with /a/ into a long [ɛ·]. Disyllabic *ae apparently does not occur (phonetically or phonemically); and although disyllabic [éa] has been heard in several forms, such occurrences have always been matched by others in which the same speakers replace this sequence by [éja]; so that [béabu] and [béjabu] alike must be regarded as phonemic béiabu *at the water front*.

2.22.51. /o/, when unstressed, is shorter and laxer; yet even so it is easily distinguished from the schwa-like allophones of /a/. As is stated under **2.22**, it has mid and high back unrounded variants, which seem to be free in positions of maximum contrast, although here the former (mid) is probably the commoner.

2.22.52. In the vowel clusters, oi, io, uo, in which /o/ is always syllabic, the higher variant is heard—always or more frequently. In ao, where it is as almost always non-syllabic, the two qualities are hardly distinguishable; but in disyllabic aó, which I have heard in only one form (aóstera [aə́stĕrə] *to be in a place*, for whose stem Sp. estar provided the model), the lower variant is always employed. Moreover, such free or idiolectic variation as may be ex-

emplified by áborehá ~ áborohá *to mark or write*, and such morphophonemic alternation as is seen in nV- *my* + orému *song* → nerému *my song*, incline me to think that the place of this phoneme in the pattern is still at mid back. As is explained under **2.22.34** above, the interpretation of [tɔ·] as toa is by way of being a make-shift.

2.22.61. Stress is not predictable, (cf. tanága *her back*, tágani *her enemy*); and the existence of such minimal pairs as áhamacá *to fly* versus ahámaca *to pounce (upon) or to grab (at)*, and those cited under **1.1**, is proof enough of its distinctive character. Nevertheless, the functional yield of this opposition is not great; and, as is the case with English ádult ~ adúlt, forms are to be found in whose pronunciation different speakers employ different accentuations. So, for example, halíabadíbu ~ háliabádibu *where are you going?* and uíari ~ úiari *kind(s) or sort(s)*. It should be noted that the reason for the difference of syllabicity in this last pair becomes clear as soon as we apply the rules given under sections **2.22.24–25** above; whereas the difference in stress and phonic substance is in no wise explainable on the basis of such a transcription as "uwiyari ~ uyari", (cf. ímira, ímiraha *to spear*; or iuériha, agiuériha *to carve out*, without shift of stress).

2.22.62. A large proportion (I cannot be more precise) of words having three or more syllables has stress on the second and on every third succeeding syllable thereafter, as in sabádu *shoes*, nisábadų *my shoes*, uarígabagába *butterfly*. It is not clear to me whether, in words containing two stresses, there is any difference between one and the other, and if so which is the stronger; except that stress before pause is always weake., while a second and word-final stress is entirely lost in contexts where the following form is stressed on the first syllable. Words of two syllables are, for the most part, stressed on the first syllable; while monosyllabic words always carry stress when pronounced in isolation. It should be noted, however, that some forms which, on the grounds of replaceability and mobility within the sentence, must be considered as words normally occur only in context; and that many of these behave as clitics—that is, they are stressed or unstressed as a part of the larger form in which they are included; such, among many others, are the quotative (nege) and past tense (buga) particles.

2.22.71. Nasalization may occur with any vowel or vowel-cluster. Like stress, with which it often but by no means always coincides, it may adhere to a particular vowel of a given morpheme; or it may, in other cases, shift or be lost with change of environment. Thus, nasalization is inherent in the first vowel of ịu *high* and hịáru *woman*, but not in that of ịo *hymen* or lịą (whose first vowel is strongly nasalized, while the second is very slightly so). From ịo is derived gaiógiru *she's still a virgin*; while ída lịą sá *how is it (that . . .)*, and ítara liá-ti *it is thus* show loss of one nasalization and strengthening of another correlated with shift of stress. In uị-ba *whistle!* → ịuira *to whistle* nasalization moves from the stem to the prefix; and in ugúie leá ~ gué leá *today, now* (in slow and in rapid speech respectively) it clings to the only remaining syllabic vowel. In ą́hą *yes, agreed* → máhati *he is unwilling*, and in sú *all or every* → ásura *to finish*, it is completely lost. Finally, nasalization may itself constitute a morph, as in núị *my meat*, from úi *meat*; bisábadų *thy shoes*, from sabádu *shoes*; and tubuídų *her prettiness or goodness*, from ubuíduni *prettiness or goodness*.

2.22.72. Nasalization is usually stronger with stressed than with unstressed syllables. As is stated under **2.11** and **2.22** above, a nasalized vowel may approximate, in some environments, to an oral vowel followed by a labial, apical, palatal, or velar nasal conconant. Besides the positions of such occurrences as are mentioned in the sections just cited, a nasal sound like an incomplete palatal nasal [ɲ], (i.e., the back of the tongue does not make contact with the

roof of the mouth), and preceded by an oral [i] is employed by some speakers in place of nasalized [ĩ] followed by semivowel offglide. The latter pronunciation is employed by at least as many speakers as use the incomplete ɲ-sound, and is acceptable to all. Nor could any trace of an opposition between these two phonetic sequences be discovered. Among others in which this sound has been heard, are the following forms: abɨara *to practise sorcery*, lɨą *he says*, or *it is*, (but not in derived abiąragolei *charm, potion, spell-binding*; nor yet in lią-ti, in which the nasalized vowel is nearer to a velar nasal), ɨu *high*, ɨéi *there*, ɨéɨei *tongue*, hɨáru *woman*.

2.3. Variation may be recapitulated as follows: As regards the consonants, section **2.12** is sufficiently concise. For the vowels, /i/ (**2.22.11–13**): [i, ɪ, ɨ, e̯, j]; /u/ (**2.22.21–25**): [u, o, ŭ, ŭ, ų, o̯, w, y]; /a/ (**2.22.31–34**): [ɛ, æ, a, ə, ɑ, ʌ, ɔ]; /e/ (**2.22.41–42**): [e, ĕ]; /o/ (**2.22.51–52**): [ë, ĭ, ĭ]; /Ṽ/ (**2.22.61–62**); /V̯/ (**2.22.71–72**).

3.1. It goes without saying that any analysis of a living language is tentative, and such validity as it may possess limited and ephemeral. The foregoing is the result of an attempt to discover the system of figurae, in this case phonemes, underlying a sample of the speech, recorded in 1947–48, of some of the linguistically more conservative native speakers of Island Carib, then living, for the most part, in the village of Hopkins. All such distinctions as were heard to recur with some frequency in repetitions of the same forms by one or another informant were noted. However, while no well established form has been wilfully ignored, whatever its age and provenance, I have not thought it necessary to include for analysis such foreignisms, recognized as such by the speakers themselves, as: *at that time, must be, sweetheart, soon, Dios vos bendiga*, etc., common enough as these and other expressions are, and however they may be pronounced. "All grammars leak;" and so, undoubtedly, do all phonemic systems. And this leakage is more evident in the case of such a language as Island Carib, almost all of whose speakers today have English or Spanish as their "bread language"; for, in the absence of any substantial core of unilinguals, the mixing of languages is widely tolerated, and "borrowings" tend to continue long in an undigested state.

3.2. What appears to me as the most debatable phonological problem in any description of the present stage of this dialect concerns the status of phonetic [o], and the position in the pattern of the phoneme I write as /o/. There seems to be no doubt but that [o] varies freely with [u] in such positions as in luágu *upon or about him*; or that these sounds are in complementary distribution in such forms as abúacagua *to enclose*, with [o] after /b/, but agúara *to call out*, with [u] after /g/; (v. **2.22.22–23**). Also in forms that have certainly been borrowed within the past 150 years, [o] of the model is replaced by a diphthong, by [u], or by some other sound; so, aiáu *goodbye*, with [ɔu̯], from Sp. adiós; sibúia *onions*, with [u], from Sp. cebolla; gúdi *resinous pine*, with [u], from C. A. Sp. ocote; dų́du *stupid*, with [ū] and [u], from Sp. tonto; báulu *bowl*, with [ɔu̯], and falá *followed*, with unstressed and stressed [a], from English. It may be, however, that the vowel or diphthong of such an English or Spanish form as *no*, employed as an interjection in an otherwise Island Carib utterance, differs somewhat from the diphthong of native náu *on, about, or with me*. True, this hardly constitutes replacement, with change of meaning, of one sound by another "in the same environment"; but it does seem likely, from the present rate of borrowing and from the presence of a *case vide* in the pattern itself, that [o] will be phonemicized before very long. One may predict that, when this happens, /u/ and /o/ (which we must then relabel as /ɯ/) will be confined within the range of their present high variants. This would also solve the problem of [tɔ·], which would then be quite analogous

to lea, and more plausibly interpreted as toa (with new and not old /o/). But this acquisition to the phoneme-inventory, which we have no right to anticipate, will involve "necessarily the reorganization of all the old distinctive oppositions of the system;" so that the present description may still serve to explain one stage in the evolution of this language.

Another point in my analysis to which exception may be taken is my grouping of [w] with [u], and of [j] with [i], as phonemic /u/ and /i/. Certainly, the sounds usually represented in English by *w* and *y* are very frequent in this language; but this in itself is no reason for considering them to have an independent status in the pattern. According to my data, these sounds do not occur as such between pause and a stressed vowel, but are always preceded in this position by a semisyllabic variant of the homorganic vowel. When English-speaking members of this community say (English) *well*, which they employ in an otherwise Island Carib utterance only to indicate resumption of discourse, the initial sound is a short, lax, high front rounded [ŭ], and the semivowel off-glide preceding the stressed vowel is identical with the initial sound of French huile;—[ŭyél]. The same is true, with change of initial vowel and its following off-glide, when such an English form as *wine* or *yes* is uttered by the same speakers. In unstressed syllables, [y] occurs before /i, e/, [w] before /a, o, urí/ (but nowhere else before /u/); while [j] occurs before /e, o, u, a/, but never before /i/. Moreover, the [wu] which occurs with some speakers in this one sequence (where others have only [u]) behaves, morphophonemically, when a prefix is added, like a simple vowel phoneme; so, [wuríbəni],—more closely [wuríbɐni] *badness*, [úri] *breasts*; but [maríbã] *without badness*, analogous to [mári] *without breasts*. This seems to justify my phonemicization of these forms as: uríbani → maríbą, úri → mári. Finally, as is pointed out in section **2.22.61,** the alternative pronunciations of what is recognized as the "same word" meaning *kind(s) or sort(s)*, [ŭyíjæri] or [újæri], are most plausibly interpreted as divergent accentuations of the same sequence of linear phonemes, uíari ~ úiari; the semivowel off-glide of the first high vowel in uiV and iuV sequences always being lost when the second is unstressed.

It has been urged that nasalization of vowels in this language should be treated as a separate linear phoneme, or, alternatively, as an allophone of both /m/ and /n/. The first of these proposals seems to me quite unrealistic; for not only would this consonant (?) display an instability unparalled among its fellows, but it would have the appearance, in some positions, of breaking up what in reality is a nasalized vowel-cluster; so, for example, in ịéị *there*, if written as "iñeiñ". The seriousness of these difficulties should become apparent by reference to sections **2.22.71–72** above. The second proposal is more interesting, and might, perhaps, impose itself if it could be shown that the semivowel sounds are in opposition to their homorganic vowel counterparts. But even so, such a solution would be far from satisfactory; while on the level of morphemics, such alternations as are seen in má-buga nịą-bụ (written "má-buga nínjam-bun") *didn't I tell you*, but ítara lią́-ti (written "ítara lijáṇ-ti) *it is thus*, would be hard to explain; not to mention the strange comportment of the "semivowel" itself in, say "wím-bai" (uị́-bai) *whistle it!* but "ímwira" (ịuira) *to whistle*.

In just one bound morpheme, which usually occurs after pause and is certainly word-initial, some speakers of the more conservative type consistently have syllabic [ṇ], as in [ṇíha] *here he is*, [ṇúha] *here she is*; where most other speakers have nonsyllabic [n] preceded by a short lax vowel in harmony with that (always stressed) which follows the nasal, as in [ĭníha] *here he is;* [ŭnúha] *here she is*. Apart from forms beginning with this morpheme, the sequence VnV̆ rarely occurs after pause; and I was unable to find any minimal pair in which the same speaker opposed [ṇ] to [n].

KINSHIP AND LINGUISTIC CHANGE AMONG THE ARIZONA TEWA[1]

EDWARD DOZIER
NORTHWESTERN UNIVERSITY

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0. Introduction
1. Kinship structure
2. Terminology
3. Households and kinship behavior
4. Santa Clara Pueblo extended household
5. Arizona Tewa extended family
6. The Hopi household
7. Significance of the data

0. The problem of the interrelation of language and other aspects of culture has aroused considerable interest among linguists and anthropologists in recent years. While much has been written on the subject, it has been confined largely to theoretical speculation, which is not, of course, to deny its great importance. Nonetheless basic empirical investigation is what is needed at this time if we are to ground the postulations of the theorists and make demonstrable contributions to our knowledge of cultural and social processes. This paper presents data from three cultural groups and a tentative analysis which it is hoped will be suggestive. The treatment of the subject is only exploratory but it is believed adequate for the purposes at hand. A more intensive investigation of the problem is planned, but must await the collection of more data.

For the investigation of the problem of the relationship of language and non-linguistic aspects of culture, the Tewa of Arizona are a particularly significant group. The ancestors of this village split off from their relatives in New Mexico about 1696 and settled with the Hopi of First Mesa in Arizona.[2] The contemporary inhabitants of Tewa Village still speak the Tewa language[3] but show different retention of other New Mexico Tewa cultural patterns. In some areas of their present culture they have borrowed heavily from their Hopi neighbors. This is true of one important feature of their social organization—their kinship system—which will be analyzed in this paper.

The discussion of kinship structure and terminology below will complement the data presented in the kinship and terminological charts.

1. The conventional kinship charts reveal the essential structures[4] of the three systems. Both New Mexico Tewa and Arizona Tewa terms are highly descriptive and make extensive use of reciprocals. This is obvious in the charts where there is a special term for almost every relative. Reciprocals are made in both Tewa systems by the addition of the diminutivizing suffix to almost all

[1] Grateful acknowledgement is made to Northwestern University Graduate Office for financial assistance in obtaining field data.

[2] Studies of all three groups, New Mexico Tewa, Arizona Tewa and Hopi are now available or in process. Material on Shoshonean Hopi is the most extensive, see especially the works of Eggan and Titiev cited in this paper. An exhaustive ethnography of Santa Clara Tewa Pueblo is under preparation by Dr. W. W. Hill of the University of New Mexico. The writer has both linguistic and non-linguistic material on Arizona Tewa and Santa Clara Tewa Pueblos, some of which is in field notes and some of it has been published. See footnote references in this paper.

[3] Tewa and Hopi have been placed in the same language stock, Uto-Aztecan-Tanoan, but the relationship appears to be extremely distant. See B. L. Whorf and G. L. Trager, The Relationship of Uto-Aztecan and Tanoan, American Anthropologist 30.609–24 (1937).

[4] Phonetic symbols used in this paper for the two Tewa groups are the same as those described in H. Hoijer and E. P. Dozier, The Phonemes of Tewa, Santa Clara Dialect, IJAL 15.139–144 (1949). The phonetic symbols for the Hopi are the simplified version used by Fred Eggan, Social Organization of the Western Pueblos (Chicago, 1950).

relatives below Ego's generation. Another important point that will be noted is that the terms of the two Tewa systems are identical or obviously cognate forms. Hopi terms in contrast are essentially classificatory (i.e. large numbers of relatives are classified under one term), and reciprocals are not employed. A comparison of Hopi terms with those of the other two systems indicates that, with the one possible exception discussed in the next section, they are completely different in lexical form, i.e. in phonetic shape.

In spite of the similarities of the two Tewa systems, however, they are quite divergent structurally. Arizona Tewa kinship structure resembles that of their Hopi neighbors. Both Arizona Tewa and Hopi systems are fitted to the lineal extended household and clan organizations, whereas the New Mexico Tewa system is congruent with the bilateral extended household and the classification of kin along bilateral and generational lines.

2. The first three columns which constitute the first category in the terminological chart list the kinship terms of the three groups. It will be noted that with the possible exception of one term, ikö̀ka (Cf Arizona Tewa kà·ká^{h}), Hopi terms are entirely different in lexical form from the terms of the two Tewa systems, which are the same in lexical form or at least similar enough to show obvious genetic relationship. Notable exceptions in the Arizona Tewa system which appear to have no counterparts among the New Mexico Tewa are the following: pep'ê·, kù·kú^{h}[5] and kà·ká^{h}.

[5] According to Freire-Marreco a cognate form of this term exists in Santa Clara Pueblo for mother's mother's mother. My informants were unfamiliar with the term, however. My informants also reported that the role of the umbilical cord cutter is or was the function of the father's mother or the father's older sister in Santa Clara (as among the Arizona Tewa) and not the function of the mother's mother as reported by Freire-Marreco. Cf Freire-Marreco, Tewa Kinship Terms from the Pueblo of Hano, Arizona, American Anthropologist 16.268–87 (new ser., 1914), especially p. 278.

The second category in the terminological chart—the generalized lexical meanings of terms—does not tell us very much about the nature of the kinship systems. This information does indicate, however, that an analysis based on mere interpretation or translation of kinship terms alone gives little information about the actual kinship structure and kinship behavior. To find out about the structure and behavior that characterizes a particular kinship system we must study the actual usages of the terms and correlate them with actual behavior. Only through such an analysis do we get at the core of MEANING or SEMANTICS.

It follows from what has been said above, that the procedure of correlating actual usages of lexical forms must be correlated with actual behavior, if we are to discover significant facts about the relation between lexical form and meaning in culture. This crucial problem is discussed further in the concluding section.

The last three columns of the final category in the terminological chart indicate the primary differences in kinship usages among the three groups. These usages result in the structural configuration of the kinship systems outlined in the previous section, viz., that the New Mexico Tewa is bilateral and generational, while the Arizona Tewa and Hopi have a lineal structure.

When kinship behavior is correlated with actual usage of the terms (below) we discover further confirmation that the kinship systems of Hopi and Arizona Tewa are extremely similar and quite divergent from the New Mexico Tewa system.

3. Kinship behavior may be described in terms of the extended household which is characteristic of all three groups. It will become apparent in the discussion, however, that the household of the Tewa of New Mexico is quite different from that of the other two groups. Arizona Tewa and Hopi households and the behavior of their

members are very similar, and are consistent with matrilocal residence and the matrilineal lineage. The New Mexico Tewa household described below is specifically that of Santa Clara Pueblo, but is believed to be representative of other New Mexico Tewa pueblos.[6]

The description of the Arizona Tewa household is taken from the writer's own study[7], while that of the Hopi is from Fred Eggan.[8]

4. The basic social and economic unit of Santa Clara society is the extended family,[9] a unit which is essentially bilateral though it has a tendency toward patrilineality. This tendency, it may be ventured, may have been influenced by Spanish contact, though the presence of strong patrilineal moieties may also account for the phenomenon.

The Santa Clara Tewa household consists of a man and his wife, one or more married sons and their wives, one or more married daughters and their husbands, and all unmarried sons and daughters of the married members of the household. Other daughters of the old couple and their children may align themselves with the households of their husbands, and occasionally one or more sons of the old couple may also join their wive's extended household. Initially a couple may shift household allegiances, but once mutual work, food sharing, and visiting patterns are established the household takes on remarkable cohesiveness. These cooperative patterns keep the integrity of the household in spite of the fact that all its members do not live under one roof.

The nucleus of the household is the grandparents or greatgrandparents, and their home is the gathering place for frequent visits by members of the group. The old couple is sought for advice on economic, familial and religious matters. Their home is also the place where Tewa legends and stories are recounted and where a child might bring his grievances for helpful and sympathetic hearing.

Discipline of the children is relegated to the parents of the child, though more serious cases may be taken before the oldest man in the household, who may be either a paternal or maternal grandfather. In the absence of a grandparent, the oldest uncle, either on the mother's or father's side, may perform this function. Discipline by a member of the household is not corporal; it consists rather of scolding him for his offenses and admonishing him to do better. Formerly, in Santa Clara at least, serious disciplinary cases were handled at the village level by duly appointed disciplinarians (who did resort to corporal punishment), or through ridicule by the kǒ?sà·, or clown society.[10]

Residence in Santa Clara is predominately patrilocal, though there are scattered instances of the establishment of separate residences. In the past, separate residence consisted merely of the addition of an extra room to the house of the old couple. Recently, however, the construction of separate houses at considerable distance from the parental home has become the rule. In the construction of a room or a house, all adult members of the household assist—the men doing the heavier work and the women engaging in plastering and other lighter

[6] Cf E. C. Parsons, Social Organization of the Tewa of New Mexico, Memoirs of the American Anthropological Association, No. 36 (Menasha, Wis. 1929). Although Parsons reports that the "single family" is the rule for the Tewa her descriptions of actual households indicates an extended bilateral family with patrilineal bias as the most characteristic type.

[7] E. P. Dozier, The Hopi-Tewa of Arizona, Ms in press—to appear as Vol. 44, No. 3, University of California Publications in American Archaeology and Ethnology (Berkeley 1954).

[8] Fred Eggan, *op. cit.*, pp. 29–31.

[9] The description of the Santa Clara Pueblo household is discussed in the present tense for convenience in comparing it with the Arizona Tewa and Hopi households. Recent events in Santa Clara, particularly the effects of Los Alamos (the atom bomb site), invalidates the application of this description for the contemporary Santa Clara Pueblo household.

[10] E. P. Dozier, ethnographic notes on Santa Clara Pueblo.

tasks. The extended family also works cooperatively in planting, the caring for and the final harvesting of the crops; they likewise share in the distribution of food stuffs.[11]

Within the extended household, maximum interaction and the strongest loyalties exist. The grandparent-parent-child bond is the closest. Grandparents and parents are expected to look after the material needs of the child, seek proper ceremonial sponsors for entrance into moiety, katcina cult, and the esoteric societies. In return a child responds with respectful obedience. The behavior of siblings is intimate and they abide by the rule of deference to older members regardless of sex. Disagreements and quarrels occasionally arise—particularly over the inheritance of property—but these are usually settled by the surviving grandparent or by an older uncle.

Relations between uncles and aunts (on either the mother's or father's side) to nephews and nieces are very close. Especially is this true of an older uncle who in the absence or death of a grandparent assumes equal status to the latter in terms of authority and respect. In all such relations age is important, respect and obedience being accorded the older kin.

More distant relatives of undetermined but presumably comparable age call one another matu?i? *relative*. For obviously older males, outside of the extended household, the terms mę?mę· *mother's or father's younger brother* and tárá^{h} *father* are used; while for older females the terms kó?ô· *mother's or father's younger sister* and šíyá^{h} *mother* are employed. These terms are prefixed to the names of such individuals, e.g. tárap'ìŋ *Father Mountain* or šíyákà· *Mother Leaf*. The person so addressed replies with the appropriate reciprocal term to which is appended the dimunitivizing suffix ?è· *child*.

[11] This aspect of the Santa Clara household has changed considerably in recent years. The increasing opportunities for wage work and of a monetary income have segmented the larger cooperative and economic household unit here described.

This brief description of a New Mexico Tewa household presented here differs radically from that of the other two groups. Bilateral emphasis and deference to age are crucial aspects of the New Mexico household organization and the principals which order the behavior of its members. Arizona Tewa and Hopi household organizations are organized along a quite different principal—that of the matrilineal lineage.

5. The Arizona Tewa household normally consists of a woman and her husband, married daughters and their husbands, unmarried sons, and children of the daughters. The women comprise the important part of the unit, owning the house, dispensing food stuffs, and caring for religious paraphernalia. The oldest woman of the household enjoys the most respect, and the members of the unit look to her for instructions and seek her advice in times of trouble. Next in importance is her oldest daughter, who assumes the duties and responsibilities of the household in the absence of her mother. Men of the household leave it when they marry, although they frequently return and always consider it their home, exercising considerable authority in religious matters and the serious behavior problems of the children. The husbands have little authority in the wife's home, although they contribute to its economic support. They teach their children "how to make a living," and provide warmth and real affection for them, but they defer to their wives and their wives' brothers and uncles in disciplinary matters.

Formerly the extended household occupied a series of adjacent rooms. With the increasing importance of wage work and livestock activities in recent years separate residences are being established. In spite of this fact, however, there is keen awareness of all the relatives that comprise the household group. The growing child still has a maximum of contact with a large number of relatives. A child soon learns to identify grandparents, parents, his mother's sisters together with their husbands and children,

and his own brothers and sisters. For much of the time he eats, sleeps, and plays in the company of these relatives.

In spite of the importance of the matrilineal kin, however, other relatives also play an important role with regard to a member of an Arizona Tewa household. The members of father's lineage also figure prominently. Except for the father, these kin live in a different household; but in the small Tewa village they have maximum contact with Ego. These relatives, particularly father's mother and father's sisters, are frequent visitors to Ego's house and he is always welcome and treated with affection in their houses.

A third set of relatives provides an interesting function not found in the New Mexico Tewa household. These are the husbands of father's sisters, called θeté· *grandfather* who may joke and even engage in physical fights with a male Ego. The latter is also permitted to retaliate and does so with increasing vigor and frequency as he gets older. A girl or woman may also engage in loud talk "pretending to be angry" with her father's sister's husbands, but no physical contact is involved.

The following terms are extended to relatives beyond the household: káyê·, *mother's older sister*, is a general term for all senior women of one's clan. Younger women are called by the junior reciprocal káyê·ʔè·. Very old women are called sayâ·, *mother's mother*; these respond with the junior reciprocal sayâʔè·. All older men of one's own clan are called mę́mę́^{h}, *mother's brother*, and its junior reciprocal mémé'è· is applied to all very young members of the clan.

The Arizona Tewa household, in terms of its composition, its organization and the behavior of its members, is thus quite different from its New Mexico Tewa counterpart. Although important parts are played by the father's clan relatives and the men married into it, the essential feature of its organization is the emphasis of the matrilineal lineage.

6. The Hopi household seems almost identical with the Arizona Tewa one. The similarity of the two households has been reported by Eggan, who has drawn an exemplary comparison of them.[12] The following description of the Hopi household is taken from Eggan's account:

> The basic family unit is an extended family based on matrilineal descent and matrilocal residence and thus may consist of a woman and her husband, married daughters and their husbands, unmarried sons, and children of the daughters. This group normally occupies a set of adjoining rooms which it uses in common . . . The central core or axis of the household is composed of a line of women, a segment of a lineage. All members of this segment, male or female, are born in the household and consider it their home but only the women normally reside there after marriage. The men of the lineage leave it at marriage to reside in the household of their wives, returning to their natal home on various ritual and ceremonial occasions or in case of separation or divorce. Into the household, in turn, come other men through marriage, who take over the economic support of the household, but not its ritual support. If they remain, they gradually achieve a more important role as they become fathers and grandfathers.[13]

Members of father's lineage have functions similar to those reported for the Arizona Tewa. The joking relationship which exists between Ego and father's sisters' husbands is also paralleled. Thus intermarriage and kinship relations between the two peoples goes on with only minor adjustments.

The differences in kinship behavior between the Hopi and Arizona Tewa are worth noting, however. The Arizona husband-wife bond appears to be more enduring than among the Hopi—at least the number of divorces recorded for the Arizona Tewa do not accord with those for Hopi reported by Titiev.[14] Other differences appear to be vestigial holdovers from the bilateral, generational system of the New Mexico Tewa kinship system. For example,

[12] Eggan, *op. cit.*, pp. 146–148 and pp. 152–158.

[13] *Ibid.*, pp. 29–39.

[14] Cf. Mischa Titiev, Old Oraibi, Papers of the Peabody Museum of American Archaeology and Ethnology, Vol. 22, No. 1 (Cambridge 1944) p. 39 and E. P. Dozier, *op. cit.* Ms (1954).

whereas the Hopi make little distinction between father and his brothers and between mother and her sisters, the Arizona Tewa draw clear distinctions among these relatives. Among the Arizona Tewa, the mother's sisters are differentiated terminologically as older and younger, and differential treatment is accorded them, a distinction not made by the Hopi. Similarly older siblings are accorded greater respect and obedience by the Arizona Tewa.

In spite of these differences, however, the essential structure of the two kinship systems is similar and relatives of the two groups united by marriage appear to adjust to the differences without serious conflict.

7. Arizona Tewa and New Mexico Tewa kinship terms are identical or obviously genetically related. Yet the two systems stand quite apart both in the actual usages of the terms and also in kinship behavior. The kinship system of the Arizona Tewa thus represents an important situation where organization and behavior have changed but where the terminology, fitted to quite a different principal or organization, has been retained.

With respect to linguistic change, here is a crucial case of the retention of lexical form, but with a change in meaning. The fact that two groups may share lexical forms which are similar in lexical form may tell us of genetic or historical relationships, but they do not necessarily indicate the nature of the social organization or behavior patterns that exist in the two societies. Even if we are able to get a high correlation of shared "generalized lexical meanings" (see Terminological Chart) in such a comparison of lexical forms, we may still be considerably far from establishing similarity in usage and behavior. To get to the problem of semantic relationships, we must analyze forms with respect to actual usages and the behavior consonant with such usages. Thus we may discover, as in the case of the Arizona Tewa and the New Mexico Tewa, that in spite of similarities in lexical form and shared "generalized lexical meaning," the underlying organization and behavior between the societies may vary considerably. Conversely, we may discover that the totality of lexical forms between two groups may not correlate at all in lexical form and yet the two societies may be similar in organization and behavior. This seems to be the case between the Arizona Tewa and Hopi, at least in the realm of kinship, where both the actual usages of the terms and the behavior evoked in response to these terms are similar, whereas there is extremely wide divergence in the similarity of the kinship terms.

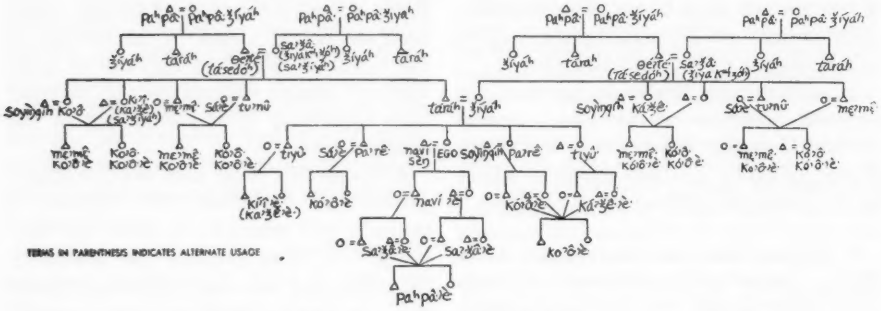
Although this paper does not investigate grammatical categories—the features of language with which B. L. Whorf was concerned[15]—it does propose the possibility that what has been said here about lexical forms may also apply to such grammatical categories. Grammatical form, like lexical form is conceivably also subject to reinterpretation. In other words, the grammatical categories that we find at any given time in a language may represent the retention of forms which were at one time compatible with the social organization and behavioral patterns of the people who spoke that language. Such a people in later migrations and contacts with other societies may have introduced new meanings or functions to these categories while the form of such categories remained substantially the same. It appears logical to assume that there is a tendency among all languages to adjust lexical and grammatical forms to actual conditions of social organization and behavior, but at any given time we may expect to find inconsistencies between form (whether lexical or grammatical) and the actual usages and behavior which exist in response to these forms. The data presented here indicate, at least with respect to kinship terms, that such is, indeed, the case with the Arizona Tewa. That is, kinship

[15] B. L. Whorf, Grammatical Categories, Language 21.1–11 (1945). See also Whorf's papers in: Four Articles on Metalinguistics. Washington, D. C.: Foreign Service Institute, Department of State (1949).

terms which were formerly adjusted to a bilateral, generational kinship system have been made to fit into a lineal system and the behavior also adjusted accordingly. The Arizona Tewa situation also implies that lexical form is more resistant to change than is meaning and that new usages and their behavioral counterparts are acquired without a corresponding change in lexical form.

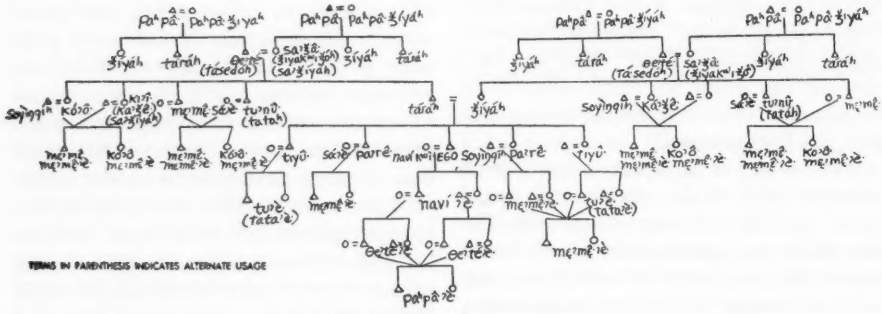
SANTA CLARA TEWA KINSHIP SYSTEM

EGO - FEMALE



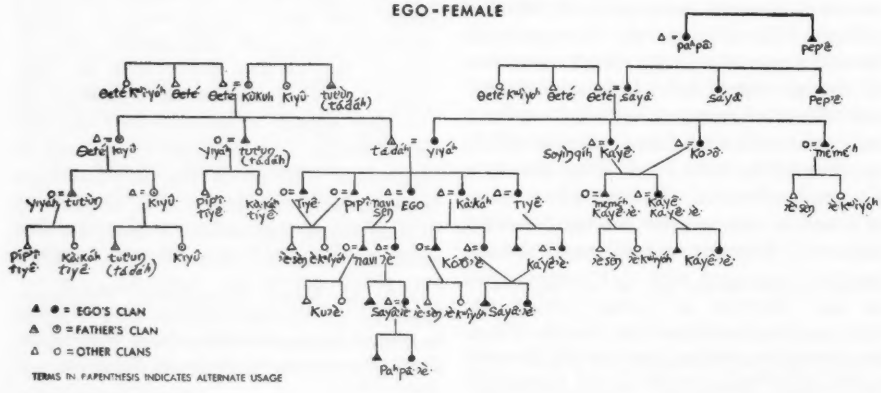
SANTA CLARA TEWA KINSHIP SYSTEM

EGO - MALE



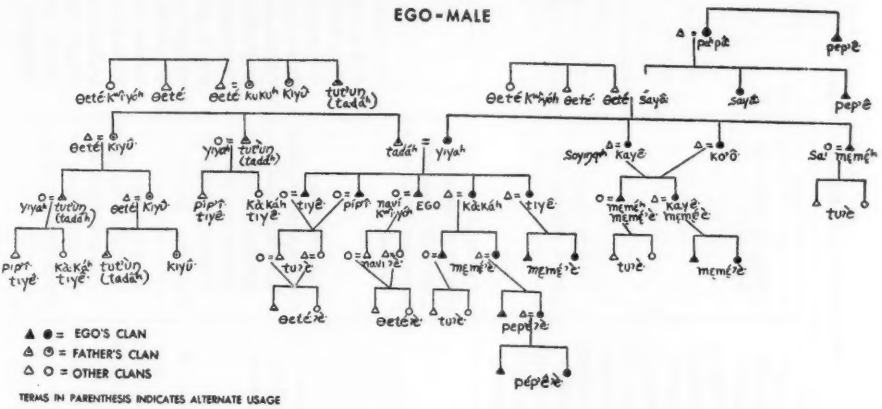
ARIZONA TEWA KINSHIP SYSTEM

EGO - FEMALE



ARIZONA TEWA KINSHIP SYSTEM

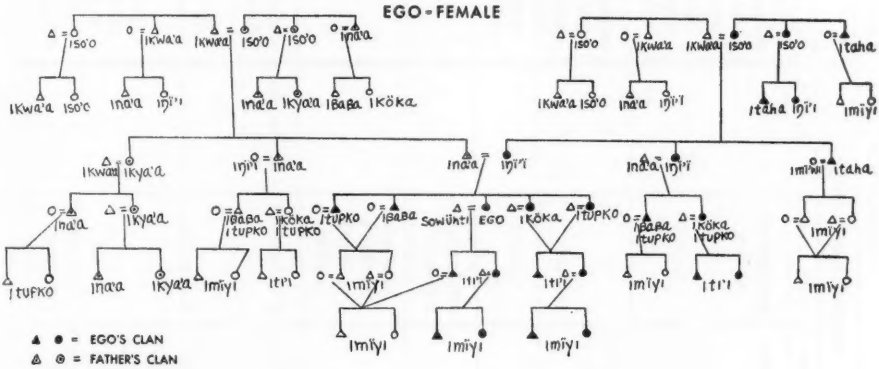
EGO-MALE



TERMS IN PARENTHESIS INDICATES ALTERNATE USAGE

HOPI KINSHIP SYSTEM

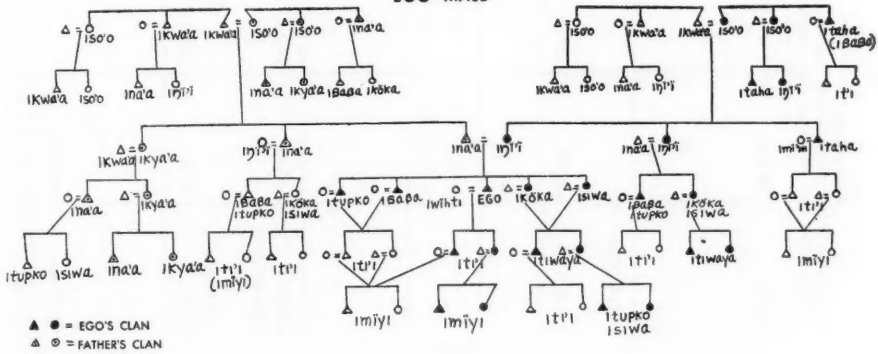
EGO-FEMALE



TERMS IN PARENTHESIS INDICATES ALTERNATE USAGE

HOPI KINSHIP SYSTEM

EGO-MALE



TERMS IN PARENTHESIS INDICATES ALTERNATE USAGE

TERMINOLOGICAL CHART

Kinship Terms			Generalized Lexical Meaning			Relatives to Whom Applied (Actual Usages)		
N. M. Tewa	Ariz. Tewa	Hopi	N. M. Tewa	Ariz. Tewa	Hopi	N. M. Tewa	Ariz. Tewa	Hopi
paᵇpâ·	pąᵇpâ·	—	greatgrand-father	greatgrand-mother	—	mother's mother's father; mother's father's father; father's mother's father; father's father's father	mother's mother's mother	—
paᵇpâ·ǯíyąᵇ	—	—	greatgrand-mother	—	—	mother's mother's mother; mother's father's mother; father's mother's mother; father's father's mother	—	—
—	pep'ê·	—	—	mother's mother's brother; mother's mother's mother's brother	—	—	mother's mother's brother; mother's mother's mother's brother	—
saᵓǯâ· (ǯiyakʷiǯóᵇ)	sayî·	iso'o	grandmother	grandmother	grandmother	mother's mother; father's mother	mother's mother; mother's mother's sister; any old woman of one's clan	mother's mother; mother's mother's sister; mother's father's sister; mother's father's sister's dau; father's mother; father's mother's sister; father's father's sister; father's father's sister's daughter

saʔšiyáʰ	kù·kuʰ	—	umbilical cord cutter woman	umbilical cord cutter woman	—	applied by Ego to father's older sister or father's mother who cuts Ego's umbilical cord at birth	applied by Ego to father's sister or father's mother who cuts Ego's umbilical cord at birth	—
θeʔté· (tá·sedoʰ)	θeté·	ikwa'a	grandfather	grandfather	grandfather	mother's father father's father	mother's father; mother's father's brother; father's father; father's father's brother; man married to father's clanswoman	mother's father; mother's father's brother; mother's father's sister's son; father's father; father's father's bro; father's father's sister's son; man married to father's clanswoman
—	θeté·kʷiyóʰ	—	—	grandfather's sister (grandfather woman)	—	—	mother's father's sister; father's father's sister	—
táʔáʰ	tádáʰ	ina'a	father	father	father	father; mother's mother's brother; mother's father's brother; father's mother's brother; father's father's brother; any man of grandparent's generation in pueblo; Winter Moiety Priest	father (sometimes used in place of *tutúy*)	father; father's clansman; mother's sister's husband; mother's father's brother's son; father's father's brother's son

Terms in parenthesis indicate alternate usage.

TERMINOLOGICAL CHART (*Continued*)

Kinship Terms			Generalized Lexical Meaning			Relatives to Whom Applied (Actual Usages)		
N. M. Tewa	Ariz. Tewa	Hopi	N. M. Tewa	Ariz. Tewa	Hopi	N. M. Tewa	Ariz. Tewa	Hopi
ǯíyáʰ	yíyáʰ	iŋĭ'ĭ	mother	mother	mother	mother; mother's mother's sister; mother's father's sister; father's mother's sister; father's father's sister. Any woman of grandparent's generation in pueblo; Summer Moiety Priest	mother; wife of father's clansman	mother; mother's sister; father's clansman's wife; mother's mother's sister's daughter; mother's father's brother's dau; father's father's brother's daughter
ká'ǯê·	káyê·		mother's older sister	mother's older sister	—	mother's older sister	mother's older sister	
ko'ô·	ko'ô·	—	mother's or father's younger sister	mother's younger sister	—	mother's or father's younger sister; prefixed to name of any woman in pueblo of parental generation older than male or female Ego (outside extended household)	mother's younger sister	
kiʔî· (kaʔǯê·)	kiyû·	ikya'a	father's older sister	father's clans-woman	father's clans-woman	father's older sister	woman of father's clan	woman of father's clan
tu'nû·(tataʰ)	tut'ùŋ (tádáʰ)	—	father's or mother's older bro	father's clansman	—	father's or mother's older brother	father's brother; man of Ego's father's clan	—

mę̥ʔmę̂·	mę̥mé̥ʰ	itaha	mother's or father's younger bro	mother's brother	mother's brother	mother's or father's younger bro; prefixed to name of any man in pueblo of parental generation older than male or female Ego (outside extended household	mother's brother; man of Ego's clan older than Ego	mother's bro; mother's mother's bro; mother's mother's sister's son
sá·ʔè·	sá	imĭ'wi	female relative-in-law	female relative-in-law	female relative-in-law	woman married to a man of Ego's extended household	woman married to man of Ego's Clan	woman married to man of Ego's Clan
soyìŋáiʰ	soyìŋgíʰ	—	male relative-in-law	male relative-in-law	—	man married to woman of Ego's extended household	man married to woman of Ego's clan	—
pa'rê·	píp'ĭ·	iβaβa	older sibling	older brother	older brother	Ego's older sibling	Ego's older bro; Ego's father's clansman's son older than Ego	Ego's older bro; Male child of woman of Ego's clan and generation but older than Ego; male child of man of Ego's father's clan and generation but older than Ego
tiyû·	tiyê·	itupko	younger sibling	younger sibling	Male Ego's younger brother; Female Ego's sibling	Ego's younger sibling	Ego's younger sibling; Ego's father's clansman's child younger than Ego	*Male Ego:* younger bro; male child of a woman of Ego's clan and generation but younger than Ego; male child of a man of Ego's father's clan and generation but older than Ego

Terms in parenthesis indicate alternate usage.

TERMINOLOGICAL CHART (*Continued*)

Kinship Terms			Generalized Lexical Meaning			Relatives to Whom Applied (Actual Usages)		
N. M. Tewa	Ariz. Tewa	Hopi	N. M. Tewa	Ariz. Tewa	Hopi	N. M. Tewa	Ariz. Tewa	Hopi
tiyû·—*Contd.*								*Female Ego:* younger bro or sister; male or female child of a woman (except children of "sisters") of Ego's clan and generation but younger than Ego; male or female child of a man of Ego's father's clan and generation but younger than Ego (For other exceptions see *itiwaya* (sister's child))
—	—	isiwa	—	—	male Ego's younger sis	—	—	*Used only by Male Ego:* Ego's younger sister; a female child of a woman of Ego's clan whom he calls *iŋi'i* (mother) or *itiwaya* (sister's child); a female of a man of Ego's father's clan and generation younger than Ego
—	kà·ká^{h}	ikö̀ka	—	older sister	older sis	—	older sis; daughter of man of father's clan older than Ego	Ego's older sister; Female child of woman of Ego's clan and generation but older than Ego;

tiyû·—*Contd.*								Female child of man of Ego's father's clan and generation but older than Ego
navík^{w}ì·	navík^{w}ì·yó^{h}	iwīhti	my woman	my woman	my woman	Ego's wife	Ego's wife	Ego's wife
navísèŋ	navísèŋ	sowīhti	my man	my man	my old man	Ego's husband	Ego's husband	Ego's husband
navíʔè·	navíʔè·	itiʔi	my child	my child	my child	Ego's child	Ego's child	Ego's child
—	—	itiwaya	—	—	sister's child	—	—	Male Ego's sister's child; child of woman of Ego's clan whom Ego calls *ikōka* (older sister) and *isiwa* (younger sister)
saʔǯâ·ʔè·	sayâ·ʔè·	— (see *imīyi* below)	grandchild (diminutive of grandmother)	grandchild (diminutive of grandmother)	—	Female Ego's child's child	Female Ego's child's child; Female Ego's sister's child	—
sàʔʔè·	kuʔè·	—	child of umbilical cord cutter	child of umbilical cord cutter	—	Applied to Ego by father's older sis; or father's mother who cut Ego's umbilical cord at birth	Applied to Ego by father's sis or father's mother who cut Ego's umbilical cord at birth	—
θeʔté·ʔè·	θeté·ʔè·	imīyi	grandchild (diminutive of grandfather)	grandchild (diminutive of grandfather)	grandchild	Male Ego's child's child	Male Ego's child's child; Male Ego's brother's child's child	Female or Male Ego's child's child; female Ego's sister's child's child; female Ego's clansman's child; male Ego's clansman's grandchild

Terms in parenthesis indicate alternate usage.

TERMINOLOGICAL CHART (*Continued*)

Kinship Terms			Generalized Lexical Meaning			Relatives to Whom Applied (Actual Usages)		
N. M. Tewa	Ariz. Tewa	Hopi	N. M. Tewa	Ariz. Tewa	Hopi	N. M. Tewa	Ariz. Tewa	Hopi
paʰpâ·ʔè·	paʰpâ·ʔè·	—	Great grandchild (dim. of great grandfather and great grandmother)	Great grandchild (dim. of great grandmother)	—	Male or female child's child's child	Female Ego's child's child's child	—
kâʔǯê·ʔè·	kayê·ʔè·	—	mother's older sister (diminutive)	mother's clanswoman (diminutive)	—	Female Ego's younger sister's child	Female Ego's younger sister's child; child of woman of female Ego's clan younger than Ego	—
kóʔô·ʔè·	kóʔô·ʔè·	—	mother's younger sister (diminutive)	mother's younger sister (diminutive)	—	Female Ego's older sister's child; any person in pueblo younger than female Ego	Female Ego's older sister's child	—
kiʔɬ·ʔè· (kaʔǯê·ʔè·)	— (See ʔè·*sèŋ*·) and ʔè·*kʷiyóh* below)	—	father's older sister (diminutive)	—	—	Female Ego's younger brother's child	—	—
tuʔè· (tatáʔè·)	tuʔè·	—	father's or mother's older bro (diminutive)	father's brother (diminutive)		Male Ego's younger brother's child	Child of man of Ego's clan younger than	—

mę?mę̂·?é·	męmę́h?é·	—	mother's or father's younger bro (diminutive)	mother's brother (diminutive)	—	Male Ego's older sibling's child; any person in pueblo younger than male Ego	child of woman of male Ego's clan younger than Ego	—
— (see *ki?·i?è·* above)	?è·séŋ	—	—	man child	—	—	Female Ego's brother's son	—
— (see *ki?i·?è·* above)	?è·kʷiyóh	—	—	woman child	—	—	Female Ego's brother's daughter	—

Terms in parenthesis indicate alternate usage.

THE CHONTAL (MAYAN) NUMERAL SYSTEM

KATHRYN C. KELLER
SUMMER INSTITUTE OF LINGUISTICS

0. Introduction
1. Quantifiers
2. Classifiers
3. Reduplication
4. Affixation
5. Numerals in sequence
6. Numerals as verb stems
7. Numeral as adjective base

0. It is the purpose of this paper to describe the Chontal[1] numeral system, especially in relation to classifiers. Although several grammars or parts of grammars of Mayan languages have appeared, none has come to my attention which treats the numeral systems in detail in regard to the so-called numeral classifiers. Tozzer mentions numeral classifiers in his grammar[2] of Maya. From the forms which he cites,[3] from illustrations in texts,[4] and from Beltran's list[5] of numeral classifiers for Maya, there appear to be some similarities in the Chontal and the Maya systems. For Chontal itself, Margaret Harris has published[6] in Mexico a list of some of the numeral classifiers grouped according to meaning, without analyzing in detail the forms or their structurally significant groups. Furthermore, the analysis presented here differs basically from that of the Harris article, in that whereas she presented the classifiers as suffixes, I am presenting them as roots (**2**).

The phonemes include a series of voiceless stops p, t, k, c, č, ʔ; a series of glottalized stops ṗ, ṫ, ḳ, ċ, č̣; voiced stops b (which is unvoiced and with superimposed glottal closure before consonants and pause), d, g (with d and g occurring in extremely limited distributions, g possibly only in loans); nasals m, n (which is velar before velar stops or pause, and is actualized preceding certain spirants as the nasalization of the vowel which precedes the phonemic n); liquids l and r; spirants w, s, š, y, h (varying from glottal spirant to light back or front velar fricative); vowels i, e, a, o, u, ə (high back unrounded). Some problems in connection with ʔ and with stress (or interrelated prosodic phenomena) have not

[1] Chontal is a Mayan language, and is spoken in the State of Tabasco in southern Mexico. It is distinct from Chontal of Oaxaca (Tequistlateco), which is not a Mayan language. The material for this paper was gathered between 1943 and 1954 in the town of Tapotzingo, under the auspices of the Summer Institute of Linguistics. Although data were collected from various informants, the informants on whose speech the final analysis is based are Catalino de la Cruz, a middle aged bilingual who has lived all his life in Tapotzingo; and Zenón Luciano May, of the same town, from whom I have gotten many of the texts. I am indebted to my colleagues of the Summer Institute of Linguistics, Kenneth L. Pike, Joe Grimes, and Robert Longacre for their many valuable criticisms and suggestions regarding the presentation of this material. The actual write-up of the material was undertaken as part of the 1954 Summer Institute of Linguistics seminar at the University of Oklahoma.

[2] Alfred M. Tozzer, A Maya Grammar, Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, vol. 9 (1921).

[3] Ibid., 103.

[4] Ibid., 115–20.

[5] Ibid., 290–2. This list Tozzer gives in an appendix, and he notes that it includes, in addition to Beltran's list, some forms from Zavala and some from his own investigations. Some of the Chontal classifiers are cognate with those in this list for Maya.

[6] Margaret Harris, Nombres Clasificadores Chontales, Anales del Instituto Nacional de Antropología e Historia 2.303–06 (1947), reviewed by William L. Wonderly in IJAL 15.90–1 (1949).

yet been solved, but appear to be irrelevant to this paper.

1. Basic (i.e. nonexpanded) Chontal numerals are root plus root[7] units consisting of a quantifier[8] (or numeral morpheme) followed by an obligatory classifier, and expandable by reduplication and affixation. First I shall discuss the quantifiers with their allomorphs (**1**). Later sections will discuss classifiers (**2**), and types of expansion of the numeral as a whole (**3**, **4**).

The quantifiers are: un- ~ um- ~ u- *one, an, a*; ča?- ~ ča- *two*; uš- ~ yuš- *three*; čən- ~ čəm- ~ čə- *four*; ho?- ~ ho- *five*; wək- ~ wəh- *six*; həy- *how many*. Throughout the paper each group of allomorphs will be referred to by the first listed member of the group. Quantifiers above six[9] do not occur. The quantifier for six is recognized by older speakers but seldom used.[10]

In morphemes un- and čən, the n assimilates to m before bilabial stops, and is lost before nasals:[11] untu *one* (e.g. applied to *man*); unpak *one doubled over*; umbuk *one swallow* or *gulp*; čəmṗe *four* (e.g. *houses*); čəmul *four piles* (cf. mul- *pile up*); unum *once* (cf. num- *pass by*).

In morphemes ča?- and ho?-, the glottal stop is lost before the classifiers -ṗe, -ka, and -ḱe, and may be lost before the classifier -ćit: ča?tu *two* (e.g. *men*); čaṗe *two* (e.g. *houses*); hoka *five groups of five each*; čake *two* (e.g. *leaves*); čaćit or ča?ćit *two* (e.g. *pencils*).

The alternant yuš- occurs in yušhəbi *three years ago*, and in yušhab *three years future* when yušhab is used in context. In isolated counting, the alternant uš- is used with -hab, as in ušhab *three years future*. The alternant yuš- also occurs when preceded by u *third person* as in u yušṗelib kin *the third day*. Compare these with the uš- alternant in uštu *three* (e.g. *men*); ušṗe *three* (e.g. *houses*).

In morpheme wək-, the k is replaced by h in combinations when the following consonant is a velar stop: wəktu *six* (e.g. *men*); but wəhkuč *six loads on the back*; wəhḱe *six* (e.g. *leaves*).

2.1. Classifiers[12] are defined as the obliga-

[7] Root in Chontal is defined as nuclear morpheme, in contrast to affix, and which has no status as a member of any word class. When roots, or root plus affix combinations, become nuclei of words in a particular word class, they are called stems of that class. Roots are the unassigned building blocks from which the various word classes may draw; e.g. kuč root *load*, which may occur with a preceding quantifier to form a numeral stem as in unkuč *one load*; it may occur with transitive verb suffixes, in which case it is a transitive verb stem, as in u kuči si? *he carried-a-load-of firewood*, in which -i is completed action verb suffix; or it may occur without affixation as a noun, as in u bisi umṗe u noh kuč tu pat *he took one his big load on-his back*, in which it occurs as object of transitive verb bisi and in a typical noun phrase of numeral plus possessor plus attributive plus noun.

[8] The term quantifier is taken from Mary Haas, in The Use of Numeral Classifiers in Thai, Lg. 18.201 (1942).

[9] Spanish numerals are used in some contexts by many Chontal speakers, especially for numbers six and higher.

[10] Otto Stoll, in his section on Vocabulario Comparado de los Idiomas Mayances in the Etnografía de la República de Guatemala, translated from German to Spanish with preface and notes by Antonio Goubaud Carrera (Guatemala, 1938, from 1884 manuscript), gives numbers through five only, for Chontal, whereas his comparative data includes, for most of the other Mayan languages which he compares, the numbers through 20, and the numbers 40, 60, 80, 100, 400, 800, 1000 (pp. 80–4).

[11] Occasionally I have heard an informant, when he was citing forms for me, pause between the numeral morpheme and the classifier, in which case the n took its phonetic pause form [ŋ] as in [čəŋ/peć] *four times* instead of the normal [čəmpeć]; or [čəŋ/mak] *four closures* instead of [čəmak]; or [čəŋ/mul] *four piles* instead of [čəmul].

[12] Wonderly in his review (op. cit.) of Harris' article, questions whether the Chontal phenomena are all 'really classifiers,' because of 'overlap' (that is, the occurrence of one noun with either of several classifiers), and because some classifiers 'occur without a following noun.' I have chosen to continue using the term classifier following the traditional use of Tozzer (op. cit.) and of Harris,

tory morphemes which occur after the quantifiers in the numeral complex. I analyze the classifiers as roots and not suffixes (versus Harris, Tozzer) because (1) most of them follow the very common Chontal root pattern phonologically of CVC, and (2) most of the morphemes which are classifiers occur in at least one other word class as stem or as one of the basic elements of the stem, and (3) according to Nida's criterion No. 6[13] for root versus nonroot, these are roots because both the quantifier and the classifier are principal 'carriers' of meaning in the Chontal numeral (in contrast to the affixes and reduplication described in **3** and **4**).

2.2. Classifiers are grouped according to their phonemic-morphemic constituency. The classifiers are usually simple morphemes of the phonological patterns CV, CVC, CVCV, or CVCVC.

Classifiers of the CV pattern are:

(1) -tu, used in counting people and animals (except for turtles, snakes, and certain long under water creatures such as the alligator): untu ahlo? *one boy*; ča?tu wiču? *two dogs*; uštu ahmis *three cats*; čəntu winik *four men*.

(2) -ƙe, used in counting leaflike or planelike objects, as leaves, paper, and as in the following: unƙe pop *one sleeping mat*; čaƙe wah *two tortillas* (corn cakes); ušƙe pečte? *three planks*.

(3) -ṗe, used in counting objects of a general or nonspecific shape, that is, objects which are not covered by one of the other shape classifiers, as in čaṗe otot *two houses*; umṗe to?o *a swamp*; ušṗe hoṗo *three hats*; čaṗe ṫub *two gourds*. It is used with the words for the various kinds of turtles: umṗe sičak *one hicotea*. It is used with nouns expressing nontangible concepts, as in čaṗe ƙin *two days*; umṗe ƙahalin *a piece of advice*; umṗe čahi *a story*.

(4) -ƙa, for things in groups of five, as in čaƙa išim *two groups of five* [*ears*] *of corn*; unƙa kəkəw *one group of five cocoa beans*.

(5) -še, for sides of things, as in unše u čehpa otot *one side of the house* (unše *one side*, u *its*, čehpa *side*, otot *house*); for hands, ears, legs, as in unše kə čikin *my one ear* (kə *my*, čikin *ear*); ča?še kok *my two legs* (kok *my leg*).

With the addition of certain suffixes, these classifiers have an alternant form CV1 (see **4** and **6**).

Classifiers of the CVC pattern are the most common, reflecting general Chontal root structure. They are:

(6) -tek, for plants and standing trees, as in ča?tek čo *two stalks of corn*; ča?tek ƙumop *two royal palm trees*; untek te? *a tree*. It is used for an amount of lime wrapped in a package, as in untek tan (tan *lime*). It is used of poles planted in the ground, as when they serve as table legs, as in čəntek yok *four its-legs*;[14] also used of legs of furniture in general.

(7) -ćit, for long slender objects, as in unćit čəb *one candle*; unćit čan *a snake*; čaćit bih *two roads*; unćit te? *a stick*.

(8) -šim, for small or grainlike objects, as in unšim kəkəw *one cocoa bean*; ča?šim yu? *two nuts*; ho?šim bu?u *five beans*; also said of small pieces of meat, as in ča?šim we?e *two-pieces-of meat*.

but to define it structurally in reference to its usage with quantifiers in the numeral complex, rather than in reference to the nouns which frequently accompany such numerals. William Cornyn, Outline of Burmese Grammar, Language Dissertation No. 38, 26–8 (1949) also uses the term classifier in a manner somewhat parallel to the usage of this article, as does Mary Haas in her discussion of Thai classifiers (op. cit.), in that both Cornyn and Haas, in the systems they describe, point out instances of nouns occurring with either of several classifiers, and both illustrate classifiers used independently of nouns.

[13] Eugene A. Nida, Morphology, The Descriptive Analysis of Words, 83 (Ann Arbor, The University of Michigan Press, 1949).

[14] Hyphens appear in the English translation of a Chontal phrase where I have felt it would be helpful to the reader to know which Chontal words were translated by more than one English word, and where there is not in the paper itself some other means of indicating to the reader the Chontal-English equivalence.

(9) -tuč, for ears of corn, as in untuč išim *one-ear-of corn*; untuč hač *one-ear-of undeveloped-corn*; untuč kə yok hina *one-ear-of my little corn-for-planting*. These are the only nouns in the data with which this classifier occurs.

(10) -cim, for fruits or nuts on the branch or stalk, as in ča?cim ha?as *two-stalks-of bananas*; uncim aranšaš *a-stalk-of oranges*.

(11) -tas, for things in layers, as clothes, paper, bricks, stories of a house, sleeping mats: ča?tas kə buk təhkaḵo *I have two layers of clothes on* (kə *my*, buk *clothes*); ča?tas pop pan ċen *two-layers-of sleeping-mat on bed*.

(12) -cul, for a little patch or piece, said of weeds, mud, things planted, teeth, hair, cloth: uncul pusu *a-patch-of-mud*; uncul pəḵəbi *a-patch-of something-planted*; uncul kəkwa *a-patch-of cocoa-trees*.

(13) -ḵat, times across the field, said of work, as in unḵat patan *one-time-across-the-field work*.

(14) -čak, a little patch, said of mud, water, sand, as in unčak hi? *a-patch-of sand*. Compare with -cul (12) above. When occurring before the same noun, -čak and -cul seem to be synonymous. However, -cul occurs with a wider variety of nouns than -čak.

(15) -sut, times around. I have heard this only in relation to the number of times a hat maker sews around in making the brim of a hat, as in u čuyben ušsut u wič hoṗo *he sews-for-it three-rounds its wing hat*; ben otro unsut u wič *give another round its wing*, that is, *sew around the brim once more*.

(16) -mak, for divisions, as in ušmak·otot akə kənəntan *three-room house I have*; for pieces of wood, as in a šoṫən te?, a čen ušmak *you cut wood, you make three-pieces*.

(17) -wel, for planks, paper, large pieces of cloth, tortilla, as in unwel pečte? *one plank*.

(18) -čul, for drops of liquids, as of water, lard, corn drink, gravy, as in unčul ha? *one-drop-of water*.

(19) -ṫul, for drops of liquids (nearly synonymous with -čul [18], but not used with ḵab *gravy*): unṫul čič *a-drop-of blood*.

(20) -bal, for windings of rope, thread, vine, as in ča?bal čahan *two-winds-of rope*.

(21) -kuč, for loads of things carried on the back with a head strap, as in unkuč si? *one-load-of firewood*; unkuč išim *one-load-of corn*; unkuč šan *one-load-of palm*.

(22) -kup, said of rolls of sleeping mats or paper, loose rolls of rope or braided palm or of a kind of large leaf: unkup hiṫib šan *a-loose-roll-of braided palm*.

(23) -heḵ, said of half, or approximately half, of groups of animals, persons, money, things in general, as in unheḵ mulu? *half of the turkeys*; unheḵ noḵ *part* or *half of the clothes*.

(24) -liṗ, little piece, as of meat, tortilla, coconut meat, corn drink, cloth, as in unliṗ we?e *a-little-piece-of meat*; unliṗ wah *a-little-piece-of tortilla*.

(25) -loṫ, for loads of things carried on the shoulders, as of firewood, sacks, wood, palm, as in unloṫ si? *one-shoulder-load-of firewood*.

(26) -moṗ, for fistfuls of things, as of beans, grains of corn, cocoa beans, as in umoṗ išim *a-fistful-of corn*.

(27) -pet, said of wood, blood, candy, chewing gum, patch on a dress, when round and flat or in a solid circle, as in ča?pet čič *two-round-blotches-of blood*; umpet u cuckiba kə buk *one-round its patch my dress*.

(28) -seḵ, for pieces of wood or cloth cut off, as in ča?seḵ te? *two-cut-off-pieces-of wood*.

(29) -siw, for slits or strips of things such as cloth, husks, banana skins, as in unsiw homoč *a-strip-of corn-husk*.

(30) -šiṫ, said of part of a bunch of bananas, as in unšiṫ ha?as *three or four bananas*; said of a torn off piece of meat, as in unšiṫ we?e *a-torn-off-piece-of meat*.

(31) -šop, for bunches of something, in more or less a round ball shape, as of rope, hair, clothes, as in unšop čahan *a-bunch-of rope*; unšop noḵ *a-bunch-of clothes*.

(32) -šom, said of bunches of clothes,

rope, woven palm, sacks, when not neatly arranged; said of tortilla stuck into the mouth. This morpheme seems to indicate that the bunch is about to be or has been stuck into some sort of container: ča?šom sum ya?an tan kə moral *two-bunches-of rope are in my bag.*

(33) -šoṫ, for parts of an object cut across, as of wood, sugar cane, gourds, rope, as in čənšoṫ te? *four-cut-across-pieces-of wood*; also said of *half a day* as in unšoṫ ƙin; *half a house* as in unšoṫ otot.

(34) -šul, said of wood or bone for parts broken off, as in ča?šul te? *two-broken-off-pieces-of wood*; ča?šul bak *two-broken-off pieces-of bone.*

(35) -tah, for parts of an object cut lengthwise (in contrast to -šoṫ [33]); untah coco *half a coconut cut lengthwise*; untah čum *half a squash cut lengthwise.*

(36) -teč. The morpheme teč in other contexts means *spread out.* My only illustrations of numerals containing this classifier are forms with the suffix -ab (see **4**), as in the following: untečab u tan noƙ *the cloth is very wide* (u *its*, tan *width*, onƙ *cloth*); untečab u ƙəb šan *the palm limb has many branches* (u *its*; ƙəb *hand, branch*; šan *palm*).

(37) -tom, a little patch, as of cornfield, beanfield, water in the road or field, as in untom bu?ul kab *a-small-patch-of bean field*; in these usages it is synonymous with -cul (12), but this may also be said of a little group of houses or animals, as in untom ototе *a few houses.*

(38) -tup, said of rolls of cloth, sleeping mats, burlap bags, paper, when not a lot rolled together (so in contrast to -kup [22]): ča?tup hún *two-rolls-of paper*; untup pop *a-roll-of sleeping-mat.* This last phrase refers to one sleeping mat rolled up, in contrast to unkup pop which would be used of several sleeping mats rolled together.

(39) -cil, for pieces torn off, as of paper or tortillas, cloth, or of a kind of leaf, as in ča?cil wah *two-pieces-of tortilla.*

(40) -col, for rows of things, as in uščol buƙa *three-rows-of ground-cooked-corn-for-drink.*

(41) -cop, said of a bunch of fish, a small amount of uncooked meat, a small amount of fruits, beans, corn: uncop buč *a-bunch-of fish* (i.e. *5* or *6*); uncop aranšaš *some oranges* (as *10* or *12*).

(42) -ćot, for rolls of burlap bags, cloth, sleeping mats, paper, as in unćot hun *a-roll-of paper*; synonymous, or nearly so, with -tup (38).

(43) -wol, said of balls of ground cooked corn, as in ya?an uswol buƙa *there-are three-balls-of ground-cooked-corn-for-drink.*

(44) -woy, for things gathered together, as in ča?woy noƙ *two-piles-of clothes*; said of groups of persons or animals, as in unwoy u patu? *one-group her ducks*; said of parts of cornfields or other planted fields, as in ča?woy kə čo akoli *two-parts my cornfield are-left* (e.g. if you planted a cornfield and the floods came and washed it all out but two parts).

(45) -yol, for piles of corn or beans, as in ča?yol bu?u *two-piles-of beans*; used of things joined together, as in the following: unyonyol u ni? mačit *all in one spot the points of the machetes* (u *its*; ni? *nose, point*; mačit *machete*).

(46) -buƙ, for swallows or gulps of liquids, as in umbuƙ a pa? ha? *a swallow of water for you to drink* (a *your*, ha? *water*).

(47) -meƙ, for a measure of something as large as you can get your arms around: ča?meƙ u no?an te? *two-armfuls-large its size log*; umeƙ šan u təsen *one-armful-size palm he brings.*

(48) -peč, for groups of persons, as in umpeč išiktak *a-group-of women*; for bunches of bananas, as in umpeč ha?as *a-bunch-of bananas*; for a little sleep, as in akə?bi umpeč kə wəye *I slept a little* (akə?bi *I gave*, kə *my*, wəye *sleep*).

(49) -ṗis, used of measures of things, as in čəmṗis bu?u *four-measures-of beans.*

(50) -sap, for arms length counts, from the tip of the fingers of one hand to the tip of the fingers of the other hand, said of

rope, wood, woven palm, as in čənsap šan *four-arms-lengths-of-[woven] palm.*

(51) -šoy, for coils of things, as of vine, snake, rope, wire, as in ča?šoy sum *four-coils-of rope.*

(52) -taƙ, for things joined together, as of paper with a clip; for stories of a house; for children, as in untu išik, həytaƙ u bihčok *a woman, how-many her children.*

(53) -toy, a little bit of liquids, as in untoy čič *a-little blood*; untoy yok ćak *a little bit of medicine* (ćak *medicine*).

(54) -pak, for things doubled over, folds of things, or strands, as in čəmpak sum *four-strands-of rope.*

(55) -saƈ, for a stretch of rope or thread, as in unsaƈ sum *a-stretch-of rope.* The length implied is a little over a meter, or practically equivalent to that of -sap (50).

(56) -ćak, for stacks of things, as in ča?ćak hoṗo *two-stacks-of hats*; unćak wah *a-stack-of tortillas*; unćak hun *a-stack-of paper.*

(57) -čum, for small bundles of, or a small amount of, hair, clothes, palm strips, weeds, scullions, as in unčum bənəla *one-bundle-of weeds*; unčum a ćilib šan *a-bundle-of your stripped palm.*

(58) -hob, for bundles of things which are larger than those referred to by -čum (57); unhob si? *a-bundle-of firewood.*

(59) -mič, for pinches of things, such as your fingers will hold, said of coffee, sugar, cocoa, beans, rice, salt, small candies, as in umič aćam *a-pinch-of salt.*

(60) -muč, for small amounts of beans, rice, grains of corn, meat, ground corn, as in umuč kes *an-amount-of once-ground-cooked-corn.* The amount indicated by -muč is greater than that indicated by -moṗ (26). This classifier is also used of *a-group-of children* as in umuč bihčok.

(61) -mul, for piles or heaps of things, as of beans, corn, wood, coconuts, as in ča?mul koko *two-heaps-of coconuts.*

(62) -peƙ, for a mass, as of earth or of ground cooked corn: umpeƙ kab *a-mass-of earth*; used with suffix to denote a fat person: umpeƙab noh winik *a big fat man* (noh *big*, winik *man*).

(63) -som, for an amount (as much as you can hold in your hand by the ends) of bottles, ears of corn, sticks, flowers, weeds, fish that are long in shape, paper, cloth, palm strips, rope, corn husks, as in unsom išim *a-handful-of-[ears-of] corn.*

(64) -soy, said of long slender objects when partly rounded or in an arc shape, as in unsoy puy *an-arc-of string.*

(65) -šeƙ, for forked things, as of wood, metal, the spaces between the toes or fingers, sides of the nose: čənšəƙ kə ni?kəbla *our fingers have four forks* (čənšəƙ *four forks*); kə ni?la, ča?šəƙ *our noses, two-forks.*

(66) -ṫel, for loads, as of hats, wood, sleeping mats, as in ča?ṫel si? *two-loads-of firewood.* This classifier seems to be nearly synonymous with -kuč (21).

(67) -ćum, for piles of things, as of corn, rope, beans, clothes, baby animals where they are sleeping, bricks: unćum čok wiču? *a pile of pups.* This classifier seems to be nearly synonymous with -mul (61).

(68) -peć, meaning number of times indicated by the quantifier which precedes it: həypeć *how many times*; ča?peć *twice.*

(69) -num, meaning number of times indicated by the quantifier which precedes it, or additional number of times. This is nearly synonymous with -peć (68), and they are mutually substitutable in some contexts. However, when the meaning is *again* or *a second time*, then only ča?num is used: kə bišela ca?num *lets go again.*

(70) -hab, meaning the number of years future indicated by the quantifier, as in unhab to *one year future* (to *yet*).

There is one classifier of CVCV pattern:

(71) -həbi,[15] meaning years past, as in ča?həbi *two years ago.*

[15] The reader will notice a similarity in form and meaning to the preceding classifier -hab, and to an independent noun hab *year.* I will further point out that in Chontal there are many instances of vowel change between a and ə, and that there is a suffix -i indicating third person com-

There are two classifiers of CVCVC pattern:

(72) -lukub, neck height, said of water, as in unlukub ha? *a-neck-height-of water*.

(73) -cenek, calf of the leg height, said of water, mud, or growing corn, as in uncenek ha? *a-calf-of-the-leg-height-of water*.

Two classifiers are compound forms, consisting of root plus root. One is CVC + CVC:

(74) -sutpam, head height, said of water, as in unsutpam ha? *a-head-height-of water* (sut *turn*, pam *head*).

The other compound classifier is of the pattern CVCVC + CVC:

(75) -lukub?ok, ankle depth, said of water or mud, as in unlukub?ok pusu *an-ankle-depth-of mud* (lukub *neck*; ?ok ~ ok *foot, leg*).

Complex forms, restricted combinations of root plus affix, also occur. The pattern is CVC + V^rm in which CVC in other contexts is a noun and V^r indicates reduplication of the stem vowel. These classifiers are:

(76) -wokom, thigh depth, said of water or growing corn, as in unwokom ha? *one-thigh-depth-of water* (wok *thigh*).

(77) -nəkəm, belly depth, said of water or growing corn, as in unəkəm ha? *one-belly-depth-of water* (nək *belly*).

(78) -pišim, knee depth, said of water, mud, or growing corn, as in umpišim ha? *a-knee-depth-of water* (piš *knee*).

2.3. In **2.2** the classifiers are listed in groups determined by their phonemic and morphemic content. This grouping, however, does not reflect the usage or function of groups of these classifiers. In the present section a different kind of structural grouping is given which more effectively reflects the way these classifiers are utilized; the previous grouping, however, will be called upon at one point within the structural grouping to help define the functional types. In addition, the function of the classifiers is determined by (and they themselves reciprocally determine) the function of the numerals of which they are a part, so that statements concerning the one must call upon structural facts concerning the other.

The first type of classifiers described is determined by the fact that members of this type occur in numerals which do not occur with nouns. This group is labeled Type 1, and is comprised of the classifiers -hab (70) and -həbi (71). Numerals with Type 1 classifiers occur in construction with verbs, as in unhab to kə še *a year from now I'll go* (to *yet*, kə *first person subject* of verb še *go*); yušhəbi kə či čo *three-years-ago I made cornfield* (či *made*, verb; čo *cornfield*). In these examples, the numerals with Type 1 classifier precede the verb phrase. I have observed unhəbi following the verb, however, as in ahnon unhəbi *I-was-there a-year-ago*. Numerals with Type 1 classifiers may constitute a complete utterance as a reply, as in the following conversation: Question: kaƙin ahnet tə ranču *When were-you in Villahermosa*? Answer: unhəbi *a year ago*.

Numerals which contain classifiers -peć (68) and -num (69) are unique in that they may occur between the person subject of a transitive verb and the verb proper. I label these classifiers Type 2. Illustrations of this usage are: u ča?num huče? buka *she grinds the corn a second time* (u *third person subject* of transitive verb huče?, *grind*; buka *ground cooked corn for drink*); u ča?num pəke? čo uka səti *he second-time plants cornfield because it-was-lost*, as when the corn of the first planting did not come up, or was destroyed by floods; kə ča?peć huće? kə buk *I second-time wash my dress*; u suhtə u ča?num ṯəbsen si yo *he causes it to rise again if he wants to* (suhtə *return*, verb;

pletive of verbs. However, in spite of the obvious formal resemblance between -hab and -həbi, I do not analyze the second form as consisting of root hab plus suffix -i, in that I do not wish to identify the final i of this form with the -i verbal suffix. First of all, I have no other instances of a classifier consisting of root plus verb suffix. And, too, həbi is not used elsewhere as a verb form. Therefore, while it is probable that there is an etymological connection between the i of the form həbi and the homophonous verb suffix, I do not consider this fact to be of any synchronic importance.

u *he*; ŧəbsen *cause it to rise*, verb; si *if*; yo *he wants to*, verb).

Numerals containing Type 2 classifiers may also precede the verb or the verb phrase, as in the following: ča?peć ahnon tə patan *twice I-was at work*; ča?peć kə či čo himba kab *twice I made cornfield on-this land*; ko hinda winik unum buƙik umṗe ƙin *I-want this man once that-he-should-drink a day*; ča?peć kə ćəkəli, mač u pohli uba *twice I treated her, she didn't get better* (ča?peć *twice*, kə *I*, ćəkəli *treated her*, mač *negative*, u pohli uba *she got better*).

Numerals containing Type 2 classifiers also occur following the verb or verb phrase, as in: umṗe ƙin u ƙeškan ušpeć *in one day they* [*the workers*] *are changed three times* (u *third person subject*; ƙeškan passive form of the verb, *are changed*; ušpeć *three times*); unum a cike?, mač u cihka ča?peć, *once you read it, it isn't read twice* (numeral unum occurs before the verb phrase a cike?, and numeral ča?peć occurs after the verb phrase mač u cihka); pući ča?num *he-fled again*.

When ča?num occurs following a verb or verb phrase with the meaning *again*, it occurs optionally in construction with tə *to*, as in ahnon tə ča?num təh kab or ahnon ča?num təh kab *I-was again to-my country*; akə še tə ča?num or akə še ča?num *I'm going again*. Some speakers seem to prefer to use tə ča?num, and some ča?num. In my texts from Zenón, ča?num occurred without tə. Catalino usually gave the forms with tə.

When eliciting forms from my informant, in a few instances he gave me utterances in which ča?peć occurred before a noun. I have found no illustrations of this in recorded texts to date; all instances in text have been in construction with verbs, as described above, or as complete utterances. Furthermore, numerals with -peć and -num are not used in counting objects. When ča?peć occurs preceding a noun, it directly precedes the noun: ča?peć čo kə či ya?i *twice cornfield I made there*, that is, *twice I made a cornfield in that place*. This phrasal form alternates with ča?peć kə či čo ya?i, in which the numeral precedes the verb phrase rather than preceding the noun. This latter the informant seemed to prefer and to use more frequently. Also heard was ča?peć pəƙəb *the second planting*, although here again the informant preferred another way of saying the phrase.

I label as Type 3 classifiers those which are the second element of numerals which (1) may—and usually do—occur in construction with nouns, thus contrasting with Type 1; and (2) do not occur in construction with verbs between the person subject of a transitive verb and the verb proper, thus contrasting with Type 2. All classifiers not listed as Type 1 or Type 2 are of Type 3. By far the greatest number of classifiers are of this type, which is divided into further structurally important subgroups. Following is a summary of the types of syntactic situations in which a numeral with a Type 3 classifier as its second element occurs:

The numeral may directly precede the noun, as in unćit te? *one stick*. For further illustrations, the reader is referred back to the examples given in the section above where the classifiers are listed.

The numeral containing a Type 3 classifier may be separated from the noun which governs the choice of its classifier by a noun possessor and/or by adjectives, as in the following: umṗe kə ƙahalin *one my advice*, that is, *some advice for me* (kə *first person possessor*); ŧok ča?tu u čokob *with two his children* (u *third person possessor*); aƙa?ni umṗe kə čo *it-got-ripe one my cornfield*; unćit noh taməl hibte? *one big long ladder* (noh *big*, taməl *long*); untek lowen te? *a tree with a hole in it* (lowen *with a hole in it*, te? *tree*); unšoŧ təƙən ha?as *one-half ripe banana*; a bisan tan čo umpeƙab noh wolo? buƙa *you take into cornfield one-big-mass big round ground-cooked-corn-for-drink* (for classifier suffix -ab, see **4**); ya?an umṗe kə čəčək buk, pici *there-is one my red dress, it-is-pretty*.

Sometimes the constituents of a noun phrase containing a numeral with a Type 3 classifier are discontinuous, as when umpišim

one knee height and čo *growing corn* are separated by the verb phrase u še *it goes* or u še tə čihe *it goes growing* as in the sentence umpišim u še čo or umpišim u še tə čihe čo *the corn is one knee height tall in the field*. Here umpišim must be treated either as modifying the noun čo, or possibly in some kind of cross reference with it. Another illustration of this same type of construction is untas u biše iski otot *one-layer it goes high the-house*, in which the numeral untas *one layer* is separated from the noun otot *house* by the verb phrase u biše iski. Also: unšenše to kə bohte?en kotot *only-one-side yet I wall-in-with-poles my-house*.

The numeral containing a Type 3 classifier sometimes follows the noun or noun phrase: a?benon kə pa?sen na hut unšim-ba *give-me I put-out the-your eye one*, that is, *let me put out your other eye*; biši hini u kumpale untuba *he-went that his co-godfather one*, that is, *the other co-godfather went*. In these illustrations the relating clitic ba links the numeral with what precedes, closing a phrase beginning with ni (in this case ni + a *second person possessor* > na) or with hini. Note also the following, in which the numeral follows the noun phrase: ni šan hini, ušsap to *the palm there, three-arms-lengths yet*. This varies freely with ušsap ni šan hini *three-arms-lengths the palm there*. Note also u no?an unćit te?, ča?meƙ *its size a log, two-arms-girths*. This varies freely with ča?meƙ u no?an unćit te? *two-arms-girths its size a log*.

A numeral containing a Type 3 classifier may substitute for numeral plus noun or for numeral plus noun phrase. The numeral has a noun function when it substitutes for numeral plus noun phrase in the following: u puli unheƙ hini cimim y unheƙ u kolesbi u kumpale *he branded one-half those horses and one-half he left-for his co-godfather*. Note that in this illustration (which parallels English syntax except as indicated by the hyphens) the first occurrence of unheƙ is in a construction with a noun head, which construction is the object of the verb puli, but the second occurrence substitutes for the noun phrase and is the object of the verb kolesbi.

When a numeral containing a Type 3 classifier substitutes for numeral plus noun or numeral plus noun phrase, the noun being substituted for, although not in the immediate environment of the numeral, is in the more remote verbal or nonverbal environment. An illustration of this is the following conversation, in which speakers are indicated by A and B, and utterances are numbered:

A1 kada atet *Where did-you-come-from?*

B2 ya? aton yəštup kə məne? čəb *There I-came-from Nacajuca I buy candles.*

A3 həyćit čəb a məni *How-many candles did-you buy?*

B4 kə məni hoćit *I bought five.*

A5 həyṗe a či hunćit *How-much did-you get each-for?*

B6 adies sentawu hunćiƫ; tuba hoćit akə či sinkwenta sentawu *At-ten cents each; I got the five for fifty cents* (tuba *for*, hoćit *five*, akə či *I got-them*). In this conversation, in utterances 4 and 5, numerals containing classifier -ćit occur without the noun which they enumerate. However the noun čəb *candle* occurs in the utterance of the previous speaker (Utterance 3); furthermore, the choice of classifier makes clear which noun is substituted for, since -ćit is the classifier used for whole candles (being long objects).

Utterance 5 of the above conversation illustrates a very common use of the numeral həyṗe *how much* [*money*]. It is used also in həyṗe a wəƙe? *how much will you give it for?*

Numerals containing Type 3 classifiers, like numerals containing classifiers of Types 1 and 2, may occur as complete utterances in reply types.

I should like to point out several significant groups of Type 3 classifiers. The first, Type 3a, includes classifiers 72–78, which are a significant formal group not only because they include all the CVCVC phonological pattern classifiers and all the two morpheme classifier stems, but also because they tend to occur with the same restricted

list of nouns—ha? *water*, pusu *mud*, and čo *growing corn*. Furthermore, classifiers of this group do not exhibit reduplication nor suffixation, nor have I found any instance of their occurrence with quantifiers other than un-. A root morpheme of each of these occurs in certain other contexts as a noun. The group meaning, shared by each member of Type 3a, is *depth to a given measure*.

Another group of Type 3 classifiers, which I shall call Type 3b, is characterized by the typical collocation with those nouns which also occur in collocation with verbs constructed from the same root as the classifier. This kind of distribution I call 'parallel distribution'.

In classifiers -čul (18) and -l̇ul (19), Type 3b′, the root of the classifier is the same as the root of a simple intransitive verb, and the list of nouns which may occur with a numeral containing one of these classifiers is approximately the same as the list which may occur as the subject of the cognate intransitive verb: unčul ha? ya?an tə kab *one-drop water is on-the ground*; u čule ha? tan otot *it is-dripping water in-the house*. Notice in this pair of sentences that the root čul is in the numeral unčul, and in the intransitive verb čule; the noun ha? *water* occurs with the numeral unčul in the first sentence, and is the subject of the verb čule in the second. A further illustration is the following pair of sentences, in which the numeral and the verb employ the same root as the first pair of sentences, čul, and the noun involved is ƙab *gravy*; ƙab occurs with numeral uščul in the first sentence of this pair, and as the subject of the intransitive verb (completive form) in the second: uščul ƙab ya?an tə kab *three-drops gravy are on-the ground;* ačuli ƙab tə kab *it-dropped gravy to-the ground*.

In Type 3b″ classifiers, the root of a given classifier is the same as the root of a simple transitive—rather than intransitive—verb, and the list of nouns which may occur with the numeral containing that classifier is approximately the same list of nouns that may occur as the object of the cognate verb. Furthermore, the semantic relation of a classifier of this group to its accompanying noun is correlated with the semantic relation of the verb to its object, so that a numeral containing a classifier of this group suggests semantically the result of the verbal process applied to that noun, as seen in the numeral classifier. Compare: a tahe? koko *you split-open-lengthwise the-coconut* with untah koko *one half the coconut which has been split lengthwise*. The root tah is employed by the transitive verb tahe? in the first utterance, and by the numeral untah (containing classifier 35) in the second; the noun koio *coconut* is the object of the verb tahe? in the first, and occurs with the numeral untah in the second. Compare also the following pair of utterances, in which the verb and numeral are the same as those of the preceding pair of utterances, and the noun si? *firewood* is used with each: a tahe? si? *you split the-firewood*; untah si? *one-split-off-piece-of firewood*. For further illustration note this pair of utterances: unliṗ we?e *a-little-bit-of meat* and ane a təsen unšim we?e, ƙənə a liṗən l̇ok a wićinob *you, you bring one-piece-of meat, it-is-necessary you divide-it with your younger-brothers-and-sisters*. The numeral, unliṗ, of the first utterance and the transitive verb liṗən of the second utterance both contain the root liṗ. The numeral occurs with the noun we?e *meat*, which noun is the object (expressed in the phrase preceding the verb liṗən and understood after that verb) of the verb liṗən. liṗən means *divide up into bits*, and each of these bits is unliṗ. Note also the following text in which the transitive verb šopən *to put in a bunch* and the numeral unšop *a bunch* both occur, and both are used in reference to the noun noƙ *clothes*: a wəƙe? a noƙla tan kostal a šopən; a wəle? unšop təƙa, unšop ta kə lot *you put your clothes in sack you bunch-them-in; you say one-bunch mine, one-bunch of my friend*. Classifiers of Type 3b″ include classifiers 20–24, 26, 28–33, 35, 38–40, 42–45, 50.

Type 3b‴ are classifiers of which the root is the same as the first root of a compound transitive verb (with stem composed of two roots) or is the same as the root of a complex transitive verb (with stem composed of root plus suffix), and the list of nouns which may occur with a numeral containing one of these classifiers is approximately the same list of nouns that may occur as the object of the cognate verb. This group includes classifiers 57–65, 67. There is a transitive verb čumkəče?, for example, which means *tie in a bundle*, and whose stem is composed of the roots čum *bundle* and kəč *tie* (-e? is a transitive verb inflectional suffix denoting noncompletive action). In the following pair of utterances the noun šan *palm* is the object of the verb čumkəče? in the first and occurs with the numeral unčum in the second: a čumkəče? šan *you tie* [*the strips of*] *palm into a little bundle* and unčum a ćilib šan *one-bundle-of your stripped palm*. Note also the following, in which the noun išim *corn* occurs with a numeral whose classifier is -mul[16] (61) in the first utterance, and in the second is the object of a complex transitive verb containing root mul: umul išim *a-pile-of corn* and mulhaćən išim *put the corn down in a pile* (mulhaćən is the transitive verb *put it down in a pile*; mul root *pile*; -hać causative positional transitive verb derivational suffix; -ən transitive verb inflectional suffix denoting noncompletive action).

Type 3b⁗ are classifiers -pet (27) and -toy (53), in which the root of the classifier is the same as the root of a transitive-reflexive verb, and the list of nouns which may occur with a numeral containing one of these classifiers is approximately the same as the list which may occur as the subject of the cognate verb. Note, for example, the following pair of utterances: ya?an ča?pet pusu tan otot *there-are two-round-blotches-of mud in-the house* and u pete? uba pusu tə kab *it spreads-out-round itself mud on-the ground*. The root pet occurs in the numeral ča?pet *two round blotches*; and in the verb *spread out round*, which is transitive in form but which occurs with this meaning only with the reflexive uba *itself*. In the first utterance the noun pusu *mud* occurs with the numeral, and in the second it is the subject of the verb.

There are some instances of classifiers which employ a root also employed by a verb, but in which although the distribution with nouns is partially parallel, there are examples of nonparallel distribution. This group we call Type 3c. Example: -ćit (7). This classifier is used with a great variety of nouns. I have found the transitive verb employing this root used only with wah *bread*, with which the numeral is also used. Note also the classifier -pak (54), which is used of rope, thread, woven palm; the verb pəke? (from the same root as the classifier) is also used with these nouns. However, the verb pəke? is used frequently with čo *growing corn* as in a pəke? čo *you double-over* [*the-tops-of-the*]*-cornstalks*, whereas the numeral with classifier -pak is not used with this noun (i.e. is not parallel in distribution). A number of classifiers technically fall into this group (Type 3c), since the distribution with nouns is only partially parallel. In order for a classifier to be classed here as restricted to partially parallel distribution, my data must include specifically negative reactions from my informants which exclude parallel distribution. If further data should be found for any of these classifiers indicating parallel distribution, such classifiers will then be transferred to 3b. In the meantime, however, I list as Type 3c the following classifiers: 2, 7, 25, 34, 48, 49, 52, 54, 66.

I label as Type 3d those Type 3 classifiers which consist of a root which is not also em-

[16] This classifier, as well as some others, employs a root which occurs in more than one verb stem. In such instances, the distribution of numeral with nouns and verb with nouns may be parallel for the one verb but not for the other or others. In each such case we have based our typological classification on the distribution with reference to that verb for which the distribution is most complete or widespread.

ployed by nonderived[17] verbs, thus contrasting with Types 3b and 3c; and which contrast with Type 3a classifiers in the following: they are all single morpheme CV or CVC pattern classifiers occurring with any quantifier; each tends to occur with a particular list of nouns; and a numeral containing a Type 3d classifier exhibits reduplication and suffixation. Type 3d classifiers are 1, 3–6, 8–13; for illustrations see **2.2.**

Certain Type 3 classifiers occurred in my data, but without enough illustrations to make a differential decision as to their subtype. Nevertheless I list them here with my guess as to their typing on the basis of the evidence at hand: Type 3d, classifier -čak (14); Type 3b‴, -čak (56); Type 3c, classifiers 15–17, 36, 37, 41, 46, 47, 51, 55. For illustrations of these classifiers see **2.2.**

2.4. Some classifiers seemed to occur repeatedly and others I have heard very rarely. Therefore I felt it would be profitable to make a frequency count. The count is based on approximately 230 pages of handwritten texts, which are mostly tales but which also include some texts relating how certain things are made or done, as for example, how to make a cornfield. Since these texts do not include conversations, they cannot be completely representative of the language, but the sampling is large enough to bring out some very significant facts regarding classifiers, based on relative frequency of occurrence.

Classifiers -tu (1), Type 3d, and -ṗe (3), also Type 3d, stand out in that they occur 338 and 301 times respectively.[18] Next in frequency is -num (69), Type 2, which occurred 182 times; all but one of these occurrences was with quantifier ča?-, in the numeral ča?num with its meaning of *again*.

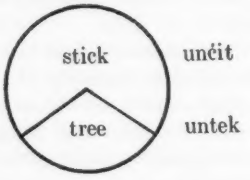
In contrast with these numerically more frequent classifiers are numerically less frequent ones as -ćit (7), Type 3c, which had next highest count at 46 times; -tek (6), Type 3d, at 17 times; -šim (8), Type 3d, at 13 times.

These three classifiers, and -tu and -ṗe above, are linked semantically in that their accompanying noun is viewed as a SINGLE UNITARY WHOLE rather than being viewed in parts or in aggregate, and they are selected for use according to some phase of the INHERENT NATURE of the object, or according to its SHAPE. In addition, the only other classifiers which have this semantic characteristic and which do not occur in this higher frequency list are -ke (2), Type 3c, occurring 7 times, and -tuč (9), Type 3d, occurring only once. There are relatively few instances of nouns occurring with more than one of the classifiers of this semantic group. When this overlap does occur, it is with nouns which have more than one semantic component, in which case each semantic component occurs with a distinct classifier. Take, for instance, the noun te?. This noun is accompanied by the classifier -tek when the component of meaning relevant to the context is *tree*; it is accompanied by -ćit when the component of meaning relevant to the context is

[17] By 'nonderived' we mean those verbs in which the numeral as a whole (i.e. the combination of quantifier plus classifier) does not serve as a base. For 'derived' verbs see **6.**

[18] Compare the following statement by Tozzer (op. cit. p. 103) about Maya proper regarding cognate classifiers: 'There is a large number of classificatory suffixes in use with the numerals. The latter can never stand alone. These suffixes qualify the term and show into what class the objects counted fall. At the present time all nouns are broadly classified into two classes, animate and inanimate, by the two suffixes -tul and -ṗel: oš-tul winik *three men*, oš-ṗel na *three houses*. Apart from a few other classifiers there is not much attention paid by the Mayas of the present time to the finer distinctions formerly made by these suffixes. Some, however, are always used.' Although the cognate Chontal classifiers are by far more frequent than any others, our data gives no structural or semantic justification for setting up an animate-inanimate dichotomy as functionally more relevant than that of others indicated by the classificatory system of this paper. As we have seen, the Chontal classifiers by definition do not classify nouns (cf. fn. 12 and **2**). Furthermore, the classificatory system of this paper has been set up to include all classifiers, not only the numerically more frequent ones.

stick or *piece of wood not growing*. The classifier is selected in accordance with the particular component of meaning of that noun relevant to the total context. This can be illustrated as follows: A circle ○ represents the total area of meaning of te?; classifiers -ċit and -tek separate that area of meaning into two components:



A number of other examples occur in reference to the names of trees. Note for example the noun wop in the following contexts: untek wop *one jahuacte tree* (a kind of indigenous tree) versus unċit wop *one stick or pole from the jahuacte tree*. Note also the noun čo *growing corn*; untek čo *a stalk of corn* but umṗe kə čo *one my cornfield*, that is *one of my cornfields*.

Sometimes another clue besides the classifier is given in the context to indicate the component of meaning involved. Compare: šan *palm*, untek šan *one palm tree* but unċit ċilib šan *one palm strip* (ċilib *split into strips*).

We have seen how the more frequently occurring Type 3 classifiers have a semantic link. Items next in frequency begin to draw on a different semantic type. Note -heḱ (23), Type 3b″, occurring 12 times, and which views its accompanying noun in aggregate; and -šoṫ (33), also Type 3b″, which occurs 10 times and which views its accompanying noun in parts.

All other classifiers which occurred in these particular texts occurred less than 10 times. Many classifiers which I have listed above do not occur in these story texts at all, but have been heard frequently in scattered conversations which I could not record in entirety but all of which were verified later in informant sessions.

One specific factor contributing to frequency versus rarity of occurrence of classifiers is the size of the list of nouns which may occur with each, and which in turn is controlled by the semantic compatibility of the particular noun with the classifiers which may accompany it. Another contributing factor is linked closely with the first, but deserves special mention here because of the particular type of nouns involved. There are certain nouns which consist of a root plus suffix -tə, the root of which is the same root as that employed by certain numeral classifiers. These nouns are among those which occur with numerals whose classifier is -ṗe. Furthermore, the resultant phrase comprised of a numeral containing classifier -ṗe plus one such noun (possessed) may substitute in at least some contexts for a numeral whose classifier is from the same root as that of the suffixed noun, to give approximately the same semantic result—the meaning element which would have been carried by the numeral classifier is now carried by a noun which in turn is accompanied by the numeral containing classifier -ṗe. Note, for example, the following two ways of saying three parts of beans: ušheḱ bu?u *three-parts-of beans* or ušṗe u heḱtə bu?u *three its parts beans*. In the first instance, a numeral whose classifier is -heḱ (23) occurs with the noun bu?u *beans*; in the second, the root (and along with the root, its meaning *part of*) -heḱ is included in the suffixed noun with which a numeral whose classifier is -ṗe occurs.

The substitution described in the preceding paragraph may be expressed by means of a formula in which Nu^1 = numeral whose classifier is -ṗe; Nu^2 = numeral whose classifier is A (in which A represents roots employed by classifiers 2, 10, 12–14, 16–23, 25–45, 47, 48, 50–67); u = third person possessor *its*; N^1 = a noun consisting of A^{19} + -tə; N^2 = the noun which is the head

[19] When A represents the root employed by classifier (2), the alternant -ḱel occurs before the suffix -tə.

of each phrase, and which represents the object under attention. The formula is:

$Nu^1 + u + N^1 + N^2$ substituting for $Nu^2 + N^2$. Further illustrations from the language are: unwoy noƙ or umṗe u woytə noƙ *a pile of clothes*; uswol buƙa or ušṗe u woltə buƙa *three balls of ground cooked corn for drink*; ča?cim ha?as or čaṗe u cimtə ha?as *two stalks of bananas*; untel pop or umṗe u teltə pop *one load of sleeping mats*. The total permitted contexts where this phenomenon may occur is not yet known. Each one of a pair of phrases in the above illustrations, however, were found substitutable in 'same' contexts.

3. Different types of reduplication of the basic numeral occur: Partial reduplication of numerals whose quantifier is un- occurs to express the limitive (meaning *only one*). This reduplication occurs without reference to morpheme boundaries; both quantifier and classifier are involved. With morpheme alternants un- and um- and CV pattern classifier, the pattern of reduplication is 1234234, as in unšenše *only one side* (with classifier -še); untuntu u cimim *only-one his horse* (with classifier -tu); umṗemṗe kə hoṗo *only-one my hat* (with classifier -ṗe). With alternants un- and um- and CVC classifier, the pattern of reduplication is 12342345, as in untentek koko *only one coconut tree* (with classifier -tek); umbumbuƙ *only one swallow*; unćinćit *only one* (e.g. *pencil*); čok čitam unćunćum ayan uƙa u tikwesan uba *baby pig only-one-pile is its-cause it warm itself*, that is, *the baby pigs are all in one pile to keep warm*. With alternant u- the pattern is 123234, as in ununum *only once*; umemeƙ u no?an *just-one-armful its size*. The above can be restated and summarized by the following formula: $uN + 12N12 \pm 3$, in which N is a morphophonemic symbol representing n, m, or ∅ of the allomorphs of un- and the numbers represent the phonemes of the classifier.

Complete reduplication of the basic numeral occurs to express the limitive in numerals which contain quantifiers two through six. Examples: ča?tu ča?tu kahce *I have only two roosters* (ča?tu *two*, kahce *my rooster*); mačan ƙen kə pa? aranšaš, yok čaṗe čaṗe ya?an *I haven't many oranges to eat, I have only two* (mačan *there aren't*, ƙen *many*, aranšaš *oranges*, kə *my*, pa? *to eat*, ya?an *there are*, čaṗe *two*); čantuč[20] čəntuč išim ya?an *there are only four ears of corn* (čəntuč *four ears*, išim *corn*); ča?peć[21] ča?peć ahnon *I was there only twice* (ča?peć *twice*, ahnon *I was there*); yok ušsap ušsap akə hiti *just three measly arms lengths of palm I wove* (ušsap *three arms lengths*); mač kə kənənta ƙen hoṗo, yok hoṗe hoṗe ya?an *I haven't many hats, there are only five* (hoṗe *five*).

Reduplication involving the quantifier alone occurs as the distributive in numbers whose quantifier is other than un-. The first two phonemes are reduplicated in the case of quantifiers ča?-, uš-, ho?, wək, həy- When the quantifier is čən-, the reduplication consists of the first two phonemes + n. Examples: ušṗe čo čača?peć kə pəki *three cornfields twice-each I planted-them*; ušuštuč do real *each-three-ears-[of-corn] two bits*, that is, *the corn costs two bits for each three ears*; čača?yol a če?la *two-piles-apiece you take-it*; čača?tu a kəče? *by-twos you tie-them*; ahəhəyṗe u yə?kan ni kəkəw *at-how-much is-it given* (i.e. *sold*) *the cocoa*? ačənčəmṗe kə ƙuši tokob huntu *at four* [*oranges*] *apiece we ate them each of us* (kə *first person*; ƙuši *ate*; tokob *plural exclusive*; ačənčəmṗe *at four each*; for pre-numeral a- and h- see **4**); ačənčəmul bu?u ya?an tə kab *there are piles of beans on the ground in groups of four* (bu?u *beans*, ya?ān *are*, tə kab *on the ground*); ačənčəntu piyo? akə kənəntan huntu *four chickens apiece we have* (ačənčəntu *at four each*, piyo? *chicken*).

[20] In this form, in very rapid speech, the final consonant seemed to drop out. However, in slow speech it was always present, and my informant would not allow me to say the phrase back to him without the final consonant.

[21] See fn. 20.

Complete reduplication of distributive forms occurs, somewhat approximating English *one by one, two by two, three by three.* Examples: hunčak hunčak an pusu *one-patch by-one-patch is mud,* that is, *there is mud in places* (for pre-numeral h- see **4**); hunum hunum akə təski *one at a time I sent them* (hunum hunum *by-one-time by-one-time*); ušuštu ušuštu u bišehob *three-by-three three-by-three they go*; čača?tu čača?tu lotoh kəče *by twos by twos they are tied together* (čača?tu *by twos*).

4. Before the quantifier un-, h- may occur to indicate the distributive, with meaning *each one* or *one at a time.* Examples: həyṗe a či hunćit *how much did each* [*candle*] *cost?* (unćit *one* but hunćit *each one*); ačača?num huntu akə še kə če? si?la *we'll get the firewood by each making two trips* (ačača?num *at two trips,* distributive form with numeral containing quantifier ča?-; hunut *each one of us,* distributive form of numeral containing quantifier un-); čačaḳe huntu *two* [*papers*] *apiece*; ḳənə umṗe ḳin huntu a təsbenon kwa? kə ḳuše? *it-is-necessary one day one you bring-me what I eat,* that is, *each day one of you must bring me my food*; u hiṫe? šan humṗe upete ḳin *he weaves palm one every day*; ahunheḳ huntu u bisan tu yotot *each takes half along home* (ahunheḳ *at half each,* referring to the beancrop yield; huntu *each person*).

The pre-numeral element a- occurs freely preceding distributive forms of the numeral as in the following: kə pukən ahunšim ahunšim upete *I distribute-it one-piece-each one-piece-each for-all*; ahoho?tu huntu kə či ṫokob *we got five* [*fish*] *apiece* (ahoho?tu *five each,* huntu *each person,* kə *first person,* či *got,* ṫokob *plural exclusive*); kə puki ṫokob aušušćit huntu *we distributed them at three* [*bananas*] *apiece*; ahuntu ahuntu biši *one by one they went.* I have not discovered whether the occurrence or omission of a- is structurally significant. The informant accepts utterances with or without the a-, and says both mean the same.

Before the quantifier un-, t- occurs, with vowel change of o to u to mean *just one.* Examples: tonḳe hun ya? čuhu kəḳa *just-one paper there stored-away I-have*; tonsap akə hiti šan sami umṗe ḳin *just-one-arms-length I wove palm this-morning one day*; tonšim a buḳe? umṗe ḳin *just-one* [*pill*] *you swallow a day*; toncim akə təsi *just-one-stalk I brought*; tontas kə buk təhkaḳo *just-one-layer my clothes I-have-on*; tonhab to kə še kə čen čo *one-year yet I'm going I make a-cornfield*; toncenek ha? ayan tə bih *just-one-calf-of-the leg-depth-of water there-is in-the road.* tomṗe occurs to mean *all in one spot,* as in tomṗe a wəḳe? *all-in-one-spot you put-it* contrasting with umṗe a wəḳe? *one you put-down,* that is, *put one down*; tomṗe ya?an uḳa *all in one spot she has them,* contrasting with umṗe ya?an uḳa *she has one* (as a *toy*); kušulet tomṗe ṫok išlulu *you-live at-the-same-place with Lulu.* The forms tonhəbi or tuba unhəbi occur, meaning *of a year ago,* as in ya?an kəḳa išim tonhəbi or ya?an kəḳa išim tuba unhəbi *I have corn of a year ago.*

There is one recorded instance of t appearing before a numeral, without vowel change. This seems to be a contraction of tə *to* plus unše *one side* resulting in tunše; the uncontracted form never occurs: tunše otot *in-the-other-side-of the-house*; tunše bih *on-the-other-side-of the-road.* This form also appears in the following riddle: tunše an, tunše mačan *on-one-side there-is, on-one-side there-isn't-any.* Contractions of tə plus u occur in other contexts, as in tu yotot *to his house,* in contrast to tə bih *to the road.*

There are three suffixes which may be added to numerals and which are mutually exclusive with each other. With the addition of these suffixes to a classifier whose vowel is 'a', the vowel a becomes ə except in the case of classifier -tah (35). With the addition of these suffixes to a basic CV pattern classifier, the classifier becomes CV1, except in the case of classifier -tu (1) before suffix -ma. For illustrations of these changes see under each suffix, below.

The suffix -ab occurs following some sim-

ple morpheme Type 3 classifiers when the quantifier is un- to indicate *greater amount.* Compare unčum ćilib šan *a-handful-of stripped palm* with unčumab ćilib šan *a-large handful-of stripped palm*; umul kaben noƙ *a-pile-of dirty clothes* with umulab kaben noƙ *a-large-pile-of dirty clothes.* Other illustrations are: untelab u kuč u biše ṫok *a-huge-load his load he is-going with*; uncopab we?e u bisan tu ƙəb *a-huge-bunch-of meat he is-taking in-his hand*; untekab noh šan *a-huge-in-the-branch big palm*; unšəƙab noh te? ya? wa?ka *a-huge-forked big stick there standing.* The only occurrence in the data of suffix -ab following a basic CV pattern classifier (and illustrating CV classifier > CV1) is unƙelab hun *a-big-piece-of paper* (with classifier 2). Illustrating change of classifier vowel a > ə are unćəkab hoṗo *one-big-stack-of hats* in contrast with unćak hoṗo *one-stack-of hats*; unsəćab yok *a-big-stretch his-legs*, that is, *he has long legs* contrasting with unsać čahan *a-stretch-of rope.*

The suffix -ib[22] occurs with the most numerals whose classifier is a simple morpheme, and whose quantifier is other than un- or həy-, to mean *second*, *third*, etc. The resultant form is in a special syntactic position in that it is preceded by u *its* or tu *to its.* Examples: u ča?pečib ha?as akə či *its second-bunch banana I took*, that is, *I took the second bunch of bananas*; u čəntekib šan *the fourth palm branch*; u ča?peċib kə ƙešben u təbi *its second-time I change-for-it its band*; u ča?ċitib ni?ƙəb *the second finger*; u yušpeċib *the third time.*

Suffix -ib varies freely with -lib following classifiers -tup, -ċot, -tah, and classifiers whose final consonant is y: u ča?woyib or u ča?woylib *the second bunch gathered together.*

Illustrations of basic CV classifiers becoming CV1 before suffix -ib are: u čaṗelib otot *the second house*; u hoṗelib ƙin *the fifth day*; ṫəbsinti iski tu čaṗelib otot iski *he-was-raised up to-its second house high*; u ča?tulib hiṫok *his second wife* or *her second husband*; u ča?tulib piyo? *the second chicken*; u čaƙelib hun *the second paper.* Illustrations of a > ə vowel change are: u ča?ƙətib pɹtan akə še ṫok *its second-crossing work I go with*, that is, *I'm on the second time across the field in work* (the classifier here is -ƙat); u ča?təsib kə buk təhkaƙo *its second-layer my clothes on-me* (with classifier -tas).

The suffix -ma[23] occurs with numerals whose classifier is Type 3 (except Type 3a), and with numerals whose classifier is -peć when the quantifier is not the interrogative quantifier həy-, to mean *the two of them*, *the three of them*, etc. Forms with -ma, like forms with suffix -ib, are in a special syntactic position in that they are usually (this term is qualified in the following paragraphs) preceded by u *its* or tu *to its.* Examples: u čənloṫma *the four loads of them*; u ča?tuma wiču? *the two dogs*; u yuštekma šan *the three palm branches*; u čənċitma ha?as *the four bananas.* In the combination of CVm classifier with -ma, the cluster mm reduces to m: u čəncima *the four stalks* (with classifier -cim); u ca?šima u hut *his two eyes.*

Illustrations of the basic CV classifiers which become CV1 before suffix -ma are: u čaƙelma kə hun *the two-of-them my papers* (with classifier 2); u ča?šelma *the two-sides* (with classifier 5). Illustrations of vowel change before -ma are u ho?təsma *the five layers of them* (with classifier -tas); u čənƙətma *the four times across* (with classifier -ƙat). Without vowel change is u čəntahma *the four of them cut lengthwise* (i.e. *boards*).

Forms with -ma containing the classifier -tu may be followed by person pluralizers, and are preceded by kə *first person* and a *second person* as well as by u *third person*:

[22] Perhaps an alternate analysis here would be to consider these forms with -ma and -ib suffixes as nouns, since they are preceded by u *third person possessor*, and since there are noun derivational suffixes -ma and -ib with a few words. However, I see no meaning connection between the noun suffixes and the numeral suffixes, although they are the same in form. And the nouns with -ma and -ib suffixes are unlike the numerals with these suffixes in that the nouns are not always preceded by possessor.

[23] See fn. 22.

kola kə ča?tumala *lets go, the two of us* (kola *lets go*, -la *person pluralizer of first person inclusive*); u ča?tumahob u yustan *the two of them are blowing it* (-hob *third person pluralizer*).

There are few instances in the data of -ma with numerals whose quantifier is un-, but in those which do occur preceded by kə, a, or u, h directly precedes the quantifier as a transitional phoneme separating vowels: untu *one* (e.g. *person*), but kə huntuma *I by myself*; a huntuma *you alone*; u huntekma ya? wa?ka *the one* [*tree*] *there standing*.

In the data there is only one instance of nonpossessed numeral with -ma: kə ćibi unšoyma u ti? kə buk *I embroidered around the edge of my dress* (unšoyma *around*). This numeral with -ma also occurs with u preceding it, as in ṫok u kəči? nəḵ pəči u hunšoyma u nəḵ *with his belt of skin around his belly*.

5. Sequences of numerals in which the quantifiers differ but in which the classifiers are the same occur to express *some* or *a few*, as umṗe čaṗe in the phrase u čen umṗe čaṗe ḵin patan, u če? uba tan otot *he does one two day work, he rests himself in house*, that is, *he would work a day or two, then rest in the house*. Note that in this illustration involving the sequence umṗe čaṗe, the classifier -ṗe remains constant; the quantifiers differ. Other illustrations are: koli tan u ḵahalin čaṗe ušṗe ṫan *it-remained in her head two three word*, that is, *a few words remained in her head*; umṗe čaṗe ḵin tə? yo bihčok *one two day very-much she-likes the-children*, that is, *she loved the children for a few days*; u woylan uba ča?tu uštu ahḵubu *they gather-together themselves two three zacua-birds* (a kind of indigenous bird), that is, *several zacua birds gather together*. In this last illustration involving the sequence ča?tu uštu, the classifier -tu remains constant, the quantifiers differ.

Sequences of numerals occur to express a whole plus a part, as in the following: umṗe tontah *one* (*peso*) *and a half*; čaṗe tontah *two* (*pesos*) *and a half*; čaćit tontah *two* (e.g. *sticks*) *and a half*; ča?šim tonliṗ *two pieces* (e.g. *of meat*) *and a little more*; čaṗe tonšoṫ *two* (e.g. *oranges*) *and a half*; čaćit tonšoṫ *two* (e.g. *bananas*) *and a half*; ča?kuč tonhob *two loads and a little over*.

6. Certain numerals occur with the causative verb suffix -es to form a transitive verb stem. As transitive verb, these forms occur with transitive verb inflectional suffixes, and occur with subjects and objects. Examples: kə čəmpećesan kə patan *I am-doing-it-for-the-fourth-time my work* (kə *first person subject* of transitive verb; čəmpećesan transitive verb made up of čəmpeć *four times*, -es *causative* verb suffix, -an *noncompletive* suffix of certain transitive verbs; kə patan *my work* noun phrase, object of the transitive verb); no?on, kə bab hiniˀ unćinćit, ko kə ča?ćitesan *me, my paddle there, only-one, I-want I cause-there-to-be-two*; ko kə čaṗelesan kə hukub *I-want I cause-there-to-be-two my canoe*. In the verb čaṗelesan of this last illustration, the CV1 alternant of classifier (3) occurs before the verb suffix -es.

There is one instance of a numeral occurring as the nucleus of an intransitive[24] verb: nu? to u čaḵelan y yopo *their leaves are still in the process of dividing* (nu? *present time process indicator*; to *yet*; u *third person subject*; čaḵelan intransitive verb consisting of quantifier ča- *two*, -ḵel alternant of classifier [2], -an *noncompletive* suffix of certain intransitive verbs; u *its*; yopo *leaves*). This was said regarding the size of bean plants.

[24] In Chontal, transitive verbs are distinguished formally from intransitive verbs by characteristic suffixes occurring with each. Furthermore, in transitive verbs, the dependent pronominal subjects are always pre-verb, while in intransitive verbs the dependent pronominal subjects are preverb in the noncompletive and post-verb in the completive forms. These verbs are distinguished from stative verbs by the fact that stative verbs have post-verb subject person indicators only.

The following conversation illustrates this same verb in the completive:

Speaker A: aɬəbəli a buʔu *Have-they-gotten-big your beans?*

Speaker B: aɬəbəli; ačaƙeli u yopo *They-have-gotten-big; they-have-divided-into-two their leaves* (ačaƙeli breaks down into the recent past morpheme a, quantifier ča- *two*, -ƙel alternant of classifier [2], -i *third person completive* suffix).

Numerals whose classifier is -tu may form the nucleus of a stative verb. As stative verb they occur with the subject person suffixes characteristic of stative verbs, -lon *first person*; -let *second person*. They also occur with the person pluralizers -la *pluralizing second person* and *first person inclusive*; -hob *pluralizing third person* of some stative verbs; and ɬokob *pluralizing first person exclusive*. These forms with suffixes, I analyze as stative verb, also, because they are unlike numerals in that they do not in the data modify verbs, nor stand between the person indicator of a transitive verb and the verb itself, nor occur followed by a noun head. Examples: həytuletla *how many of you are there*? (həytu *how many*; -let *second person subject*, an alternant of -et; -la *second person pluralizer*); čəntulon tokob *there are four of us* (čəntu *four*, -lon *first person subject*, ɬokob *first person exclusive pluralizer*); noʔon čaʔtulon ɬok kə səkun *I am-two with my brother*; uštuhob tama hini otot *there-are-three-of-them in this house*. Compare these with other stative verbs: piciletla *you all are pretty*; pici a buk *it-is-pretty your dress*; noʔon ƙoholon *I am-sick*. Although there are first and second person subject indicators, when the meaning is third person singular there is no overt form to indicate this meaning.

7. The combination of quantifier plus classifier appears in huntul to form the nucleus of an adjective, as in huntul išik *alone woman* that is, *unmarried woman* or *woman without children*; huntul winik *unmarried man* or *man without children*. I analyze this form as an adjective because it parallels other Chontal adjectives in that it contains the adjective suffix -l; it does not constitute a complete utterance, but must be followed by a noun; it may occur between a numeral and a noun, a spot occupied by adjectives but not by numerals, as in yaʔan untu huntul winik *there-is an alone man*. Furthermore, it is unlike numerals in that it does not modify verbs, as do Type 1 and Type 2 numerals, nor does it substitute for numeral plus noun phrase as do Type 3 numerals.

A Bibliography of the Hokan-Coahuiltecan Languages

William Bright

This bibliography is intended to cover the languages of Edward Sapir's Hokan-Coahuiltecan group, as outlined in Central and North American Languages, Encyclopaedia Britannica, 14th ed. (1929), vol. 5, pp. 138–141. The entries are arranged by language family and by language, in the order given by Sapir. Under each such heading, works are listed chronologically. Entries under language families include works comparing the various members of a family and works containing descriptive material from several members of the same family.

The listing is restricted to works which contain a description of a language, or language family, per se. Ethnological literature containing scattered linguistic items is not listed here. The list is also restricted to works which contain material not previously published. Thus, for instance, most of the Hokan-Coahuiltecan material in Hubert Howe Bancroft's Native Races (San Francisco, 1883) is not noted here, since it was taken by Bancroft from previously published sources. However, when an original source is likely to be difficult of access, its listing will also include later copies of the material which may be more available. Thus, in the entries for the Chumash language, Miguel Costanso's Diario histórico (Mexico, 1770) is listed with the notation that material derived from it may also be found in Adelung and Vater's Mithridates (Berlin, 1816). Similarly, no attempt is made to list all editions of entire works which have appeared more than once. In the case of items originally written in a language other than English and later translated, the listing gives the original edition and the most recent English translation.

Generally speaking, no notice is taken of unpublished materials. References to such may be found in James C. Pilling's Proofsheets of a Bibliography of the Languages of the North American Indians (Washington, D. C., 1885), and in C. F. Voegelin and Z. S. Harris's Index to the Franz Boas Collection of Materials for American Indian Linguistics (Linguistic Monograph No. 22, 1945), and at various points in the published literature. However, at the end of the listing for each language, I have given the names of investigators who, to my personal knowledge, possess unpublished data on that language.

The abbreviations used in the bibliographical references are the ones normally used by the International Journal of American Linguistics, plus the following:

AES-T American Ethnological Society, Transactions.

CNAE Contributions to North American Ethnology.

ICA-P International Congress of Americanists, Proceedings.

RGS-J Royal Geographical Society, Journal.

UCAR University of California Anthropological Records.

ZfE Zeitschrift für Ethnologie.

In addition, the following works are referred to by author alone:

Gallatin, Albert. Hale's Indians of North-West America. AES-T 2.xxiii-clxxxviii, 1–130 (1848).

Lucy-Fossarieu, M. P. de. Les langues indiennes de la Californie. Paris, 1881.

Schoolcraft, Henry Rowe. Information respecting the history, condition and prospects of the Indian tribes of the United States. Philadelphia, 1851–1857.

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I. HOKAN-COAHUILTECAN LANGUAGES: Comparative works.

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Greenberg, Joseph H., and Swadesh, Morris. Jicaque as a Hokan language. IJAL 19.216–222 (1953). /Addition of Jicaque, a language of Honduras, to the Hokan-Coahuiltecan stock, with further comparisons to Gulf languages./

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II. HOKAN LANGUAGES

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Brinton, D. G. The American race. New York, 1891. /Proposed relation between Yuman, Seri, and Tequistlatec, p. 148; proposed relation between Yuman, Seri, and Guaicura, p. 335./[1]

Dixon, R. B., and Kroeber, A. L. New linguistic families in California. AA 15.647–655 (1913). /Establishment of Hokan group as consisting of Karok, Chimariko, Shastan, Pomo, Yana, Esselen, and Yuman, pp. 651–652./

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Sapir, E. The position of Yana in the Hokan stock. UCPAAE 13.1–34 (1917). /Contains evidence for uniting of Salinan and Chumash to the Hokan group./

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2.11 KAROK (= Ehnek, Pehtsik, Quoratem)

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[1] These works, which antedated the formulation of a Hokan group, but which foreshadowed parts of the Hokan classification, are included here for their historical interest.

[2] The term Kahi (Karok, meaning 'upriver language', specifically 'Shasta') is used by me to designate the group comprising Karok, Chimariko, and Shastan, which Sapir marks only with the letter (a).

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2.12 CHIMARIKO

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2.132. PALAIHNIHAN LANGUAGES (Achumawi-Atsugewi)[4]

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[3] These works are listed under the Shastan family, rather than under any individual language, because of the disputed classification of the forms of speech involved.

[4] The term Palaihnihan is not used by Sapir; it is taken from J. W. Powell, Indian linguistic families north of Mexico, BAE-R 7.1–142 (1891).

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2.1322. ATSUGEWI

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Barrett, S. A. The ethnogeography of the Pomo and neighboring Indians. UCPAAE 6.51–332 (1908). /Comparative vocabularies, pp. 56–68./

Kroeber, A. L. Languages of the coast of California north of San Francisco. UCPAAE 9.273–435 (1911). /Grammatical sketch, list of verb stems, and text, pp. 320–347./

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Gifford, E. W., and Lowie, R. H. Notes on the Akaw'ala Indians of Lower California. UCPAAE 23.339–52 (1928). /Comparative vocabulary of Akwa'ala, Kiliwa, and Cocopa, pp. 351–352./

Curtis, E. S. The North American Indian.

Norwood, 1924. /Vocabularies, vol. 2, pp. 123–128, and vol. 15, pp. 179–182./

Kroeber, A. L. The Seri. Southwest Museum Papers No. 6 (1931). /Cochimí, Yuma, and Cocopa word lists, presented for comparison with Seri, p. 34./

Kroeber, A. L. Classification of the Yuman languages. UCPL 1.21–40 (1943).

Spier, Leslie. Comparative vocabularies and parallel texts in two Yuman languages of Arizona. University of New Mexico Publications in Anthropology, no. 2 (1946). /Compares Havasupai and Maricopa. See review by H. V. Velten, IJAL 13.187–189 (1947)./

4.21. COCHIMI (including Laymón)[5]

Ducrue, Franz Benno. Specimina linguae californicae. Pp. 268–274 in Murr, Christoph Gottlieb von. Journal zur Kunstgeschichte and zur allgemeinen Litteratur. Nürnberg, 1784. /Short sentences in Laymón (a dialect of Cochimí?), with interlinear translation in Latin. Reprinted in Murr's Nachrichten von verschiedenen Ländern des spanischen Amerika (Halle, 1809), vol. 2, pp. 394–397. Also reprinted in part in J. C. Adelung and J. S. Vater, Mithridates (Berlin, 1816), vol. 3, part 3, pp. 194, 198–199./

Hervás, Lorenzo. Saggio pratico delle lingue. Cesena, 1787. /Paternoster, p. 123; catechisms, pp. 234–237./

Clavigero, Francesco Saverio. Storia della California. Venezia, 1789. /Grammatical notes, vol. 1, pp. 110–111; paternosters in various dialects, pp. 264–266./ Reprinted as The history of Lower California. Translated from the Italian and edited by Sara E. Lake and A. A. Gray. Stanford University, 1937. /Grammatical notes, pp. 87–89; paternosters, p. 396./

4.22. DIEGUEÑO

Scouler, John. Observations on the indigenous tribes of the N. W. coast of America. RGS-J 11.215–251 (1841). /Vocabulary, pp. 246–250./

Duflot de Mofras, Eugène. Exploration du territoire de l'Orégon. Paris, 1844. Reprinted as Travels on the Pacific Coast. Translated, edited and annotated by Marguerite Eyer Wilbur. Santa Ana, 1937. /Paternoster, pp. 204–205./

Taylor, Alexander S. California notes: The Indianology of California. California Farmer, vols. 13–20, passim (1860–1863). /Vocabulary from San Miguel Mission, Lower California, vol. 13, no. 13, May 18, 1860. Reprinted in Lucy-Fossarieu, pp. 20–55./

Unpublished materials: Alfred S. Hayes.

4.23. HAVASUPAI

Spier, Leslie. Havasupai (Yuman) texts. IJAL 3.109–116 (1924).

4.24. MOHAVE

Kroeber, A. L. Phonetic elements of the Mohave language. UCPAAE 10.45–96 (1911).

4.25. YAVAPAI

Gatschet, Albert S. Zwölf Sprachen aus dem Südwesten Nordamerikas. Weimar, 1876. /'Tonto' grammatical remarks, pp. 69–72; vocabulary, pp. 99–115./

4.26. YUMA

Halpern, A. M. Yuma. VFPA 6.249–288 (1946). /Grammar./ A more detailed version appeared in IJAL 12.25–33, 147–151, 204–212 (1946), 13.18–30, 92–107, 147–156 (1947).

Unpublished materials: A. M. Halpern.

4.3. GUAICURA[6]

Baegert, Johann Jakob. Nachrichten von

[5] Publications on individual Yuman languages (these are not listed by Sapir) are here arranged in the alphabetical order of the languages concerned.

[6] The shortage of data has not permitted more than an intuitional classification of Guaicura. It is listed at this point because it has been connected with Yuman by some writers (originally by Brinton) and because of its geographical position, immediately south of Yuman. On the subject of Lower Californian languages generally, see William C. Massey, Tribes and languages of Baja California, SJA 5.272–307 (1949). This work discusses the linguistic distribution and classification of the area on the basis of early travellers' and missionaries' reports, without presenting any actual language material.

der amerikanischen Halbinsel Californien. Mannheim, 1771. Second edition, 1772. Reprinted as Observations in Lower California. Translated from the original German, with an introduction and notes, by M. M. Brandenburg and Carl L. Baumann. Berkeley and Los Angeles, 1952. /Grammatical notes, Christian texts, and a verb paradigm, pp. 94–104./

5. SALINAN-SERI LANGUAGES: Comparative work.

Dixon, R. B., and Kroeber, A. L. New linguistic families in California. AA 15.647–655 (1913). /Establishment of Iskoman group, comprising Salinan and Chumash, pp. 652–653./

5.1. SALINAN

Scouler, John. Observations on the indigenous tribes of the N. W. coast of America. RGS-J 11.215–251 (1841). /Vocabulary, pp. 247–251./

Hale, Horatio E. Ethnography and philology. Vol. 6 of Wilkes, 1846. /Vocabulary, pp. 633–634. Reprinted in Gallatin, p. 126./

Taylor, A. S. California notes: The Indianology of California. California Farmer, vols. 13–20, passim (1860–1863). /Vocabulary, vol. 13, no. 10, Apr. 27, 1860./

Sitjar, Buenaventura. Vocabulario de la lengua de los naturales de la misión de San Antonio, Alta California. Nueva York, 1861. (Shea's Library of American Linguistics, vol. 7.) /Prefaced by grammatical remarks by J. G. Shea./

Kroeber, A. L. Languages of the coast of California south of San Francisco. UCPAAE 2.28–50 (1904). /Grammatical notes, pp. 43–47./

Mason, J. Alden. The language of the Salinan Indians. UCPAAE 14.1–154 (1918). /Grammar, texts, vocabulary./

Pinart, Alphonse. California Indian linguistic records. UCAR 15.1–84 (1952). /Vocabulary, pp. 73–82./

Unpublished material: J. P. Harrington, William Jacobson.

5.2. CHUMASH

Costansó, Miguel. Diario histórico de los viages de mar y tierra hechos al norte de la California. México, 1770. Reprinted as The narrative of the Portola expedition of 1769–1770. Edited by Adolph van Hemert-Engert and Frederick J. Teggart. Publications of the Academy of Pacific Coast History, 1.91–159 (1910). /Vocabulary, p. 51./

Scouler, John. Observations on the indigenous tribes of the N. W. coast of America. RGS-J 11.215–251 (1841). /Vocabularies, pp. 247–251./

Fages, Pedro. Voyage en Californie. Traduit de l'espagnol . . . Nouvelles Annales des Voyages, 101.145–182, 311–347 (1844). /Vocabulary from San Luis Obispo, pp. 345–347./ A modern edition is A historical, political, and natural description of California . . . newly translated into English from the original Spanish by Herbert Ingram Priestley. Berkeley, 1937. /Vocabulary, pp. 80–83./

Duflot de Mofras, Eugène. Explorations du territoire de l'Orégon. Paris. 1844. Reprinted as Travels on the Pacific Coast. Translated, edited and annotated by Marguerite Eyer Wilbur. Santa Ana, 1937. /Paternoster, p. 204; numerals, p. 209./

Gallatin, Albert. Hale's Indians of North-West America. AES-T 2.xxiii-clxxxviii, 1–130 (1848). /Vocabularies, p. 129./

Taylor, Alexander S. California notes: The Indianology of California. California Farmer, vols. 13–20, passim (1860–1863). /Vocabulary, vol. 13, no. 11, May 4, 1860. Reprinted as Santa Ynez vocabulary. Historical Magazine, 9.147–148 (1865). Material also reprinted in Lucy-Fossarieu./

Gatschet, A. S. Analytical report on eleven idioms. Pp. 330–343 in Wheeler, 1876. /Comparative notes, pp. 331–333./

Gatschet, A. S. Linguistic appendix. Vol. 7, pp. 399–485 in Wheeler, 1879. /Vocabulary, pp. 464–465, 485./

Caballería y Collel, Juan. History of the city of Santa Barbara. Translated by E. Burke. Santa Barbara, 1892. /Grammatical notes and Christian texts, pp. 40–47./

Kroeber, A. L. The languages of the coast of California south of San Francisco. UCPAAE 2.29–80 (1904). /Grammatical notes, pp. 31–43./

Kroeber, A. L. The Chumash and Costanoan languages. UCPAAE 9.237–271 (1910). /Vocabularies, brief grammatical notes, and texts, pp. 264–271./

Englehardt, Zephyrin. Santa Barbara Mission. San Francisco, 1923. /Christian texts, pp. 443–449./

Heizer, R. F. (editor). California Indian linguistic records: The Mission Indian vocabularies of Alphonse Pinart. UCAR 15.1–84 (1952). /Vocabularies, pp. 36–72./

Heizer, R. F. (editor). California Indian linguistic records: The Mission Indian vocabularies of H. W. Henshaw. UCAR 15.85–202 (1955). /Vocabularies, pp. 94–147; texts, pp. 148, 190–193; place names, pp. 194–200./

Unpublished materials: J. P. Harrington, M. S. Beeler.

5.3. SERI

Pimental, Francisco. Cuadro descriptivo y comparativo de las lenguas indígenas de México. México, 1875. /Descriptive and comparative notes, vol. 2, pp. 230–242./

Gatschet, A. S. Der Yuma-Sprachstamm. ZfE 9–24, passim (1877–1892). /Vocabularies, 15.129–138, 18.114–122./

Hewitt, J. N. B. Comparative lexicography. Pp. 299–344 of McGee, W. J. The Seri Indians. BAE-R 17.9–344 (1896). /Material from Pimentel and from three unpublished sources compared with Yuman. The author comes to the conclusion that there is no Seri-Yuman relationship./

Hernández, Fortunato. Las razas indígenas de Sonora. México, 1902. /Vocabularies and grammatical observation, plus comparative material copied from Hewitt, pp. 237–295. The lexical material here is fuller than that in Hewitt, but less carefully printed./

Kroeber, A. L. The Seri. Southwest Museum Papers No. 6 (1931). /Notes on language, pp. 31–35. Includes comparative word-list with Cochimí, Yuma, and Cocopa. The author concludes that the languages are related./

Unpublished material: Edward Moser (Summer Institute of Linguistics).

6. TEQUISTLATEC (Chontal de Oaxaca)

Pimentel, Francisco. Cuadro descriptivo y comparativo de las lenguas indígenas de México. México, 1875. /Vocabulary, vol. 3, pp. 293–294./

Brinton, Daniel G. Chontales and Popolucas. ICA-P, 8th session, pp. 556–564 (1890). /Vocabulary, p. 562./

Belmar, Francisco. Estudio del chontal. Oaxaca, 1900. /Grammar, phrase-list, folkloric and Christian texts, and vocabulary. Part of the grammar is reprinted in Manuel Martínez Gracida, Civilización chontal (México, 1910), pp. 39–50, 52–56./

Belmar, Francisco. Familia mixteco-zapoteca. México, 1905. /Grammatical notes, pp. 188–217; text fragments, pp. 361–365./

Belmar, Francisco. Glotología indígena mexicana. México, 1921. /Bits of data, passim./

De Angulo, Jaime, and Freeland, L. S. The Chontal language (dialect of Tequixistlan.) Anthropos 20.1032–1052 (1925). /Grammatical notes, vocabulary, and some short texts./

Covarrubias, Miguel. Mexico south: the Isthmus of Tehuantepec. New York, 1946. /Vocabulary, pp. 428–435./

Pike, Kenneth. Phonemics. UMPL vol. 3 (1947). /Phonetic vocabularies, pp. 83, 102, 153–154, provided by Viola Waterhouse and May Morrison./

Waterhouse, Viola. Learning a second language first. IJAL 15.106–109 (1949). /Describes bilingual situation among Chontal Indians./

Waterhouse, Viola, and Morrison, May. Chontal phonemes. IJAL 16.35–39 (1950).

Unpublished material: Viola Waterhouse and May Morrison (Summer Institute of Linguistics.)

III. SUPANEC (Subtiaba-Tlapanec) (= Maribio, Nagrandan, Yopi)

Squier, E. G. Nicaragua; its people, scenery, monuments, and the proposed interoceanic canal. New York, 1852. /Vocabularies, vol. 2, pp. 314, 320–323, 326–327; grammatical notes, pp. 315–319./ Reprinted under the title Travels in Central America. New York, 1853.

Charencey, Hyacinthe, Comte de. Vocabulaire français-nagranda. Revue Linguistique et de Philologie Comparée 12.334–337 (1879).

Brinton, D. G. The American race. New York, 1891. /Vocabulary, p. 342./

Lehmann, W. Ergebnisse einer Forschungsreise in Mittelamerika und Mexiko, 1907–1909. ZfE 42.687–749 (1910). /Vocabulary, p. 727./

León, N. Vocabulario de la lengua popoloca chocha. Annales del Museo Nacional de Arqueología, Historia y Etnología, 3rd series, vol. 3, Appendix, pp. l-lviii (1912). /Tlapanec vocabulary, pp. lvii–lviii./

Lehmann, W. Ueber die Stellung and Verwandtschaft der Subtiaba-Sprache der Pazifischen Kuste Nicaraguas. ZfE 47.1–34 (1915). /Proposed relation to Washo./

Lehmann, W. Zentral-Amerika, I. Teil: Die Sprachen Zentral-Amerikas. Berlin, 1920. /Grammatical notes, vocabularies, and texts, vol. 2, pp. 910–978./

Radin, Paul. Notes on the Tlappanecan language of Guerrero. IJAL 8.45–72 (1935). /Grammatical notes and vocabulary./

Schulze-Jena, Leonhard. Indiana, Band III: Bei den Azteken, Mixteken und Tlapaneken der Sierra Madre del Sur von Mexiko. Jena, 1938. /'Blick in die geistige Welt der Tlapaneken,' pp. 111–373; consists of extensive texts, grammar, and Tlapanec-German lexicon./

Radin, Paul. Notes on Schulze-Jena's Tlappanec. Boletín Bibliográfico de Antropología Americana 4.70–74 (1940). /Adverse criticism of Schulze-Jena's work./

Weitlaner, Robert J., and Weitlaner de Johnson, I. Acatlán y Hueycantenango. México Antiguo 6.140–204 (1943). /Comparative phonology of Supanec dialects, pp. 183–185; phonemic chart by H. V. Lemley, p. 188, vocabularies of the different dialects, pp. 199–201./

Nida, Eugene A. Morphology. UMPL 2, 2nd edition (1949). /Some Tlapanec verb forms, with partial analysis, pp. 32–33; data from H. V. Lemley./

Unpublished material: H. V. Lemley.

IV. JICAQUE[7]

Squier, E. G. Les indiens xicaques de Honduras. Nouvelles Annales de Voyages, 160.133–136 (1858). /Vocabulary, p. 135./ Published in English as The Xicaque Indians of Honduras. The Athenaeum (London), no. 1624, Dec. 11, 1858, pp. 760–761. /Vocabulary, p. 760./

Fernández, León. Lenguas indígenas de Centro America en el siglo XVIII. San José de Costa Rica, 1892. /Vocabulary recorded in 1790, pp. 93–103./

Membreño, Alberto. Hondureñismos: Vocabulario de los provincialismos de Honduras. Second edition. Tegucigalpa, 1897. /Vocabulary, pp. 23–43. According to von Hagen (see below), displays 'most inaccurate transcription and probable invention on the part of the Indians.'/

Sapper, Karl. Mittelamerikansiche Reisen und Studien. Braunschweig, 1902. /Numerals and a verb paradigm, pp. 76–77./

Lehmann, W. Zentral-Amerika, I. Teil: Die Sprachen Zentral-Amerikas. Berlin, 1920. /Vocabularies, pp. 654–668, including

[7] Jicaque was not listed by Sapir; it is included in this list because I am convinced, with Swadesh and Greenberg, that it is related to the Hokan-Coahuiltecan languages. It is included at this particular point principally on geographical considerations.

all those previously published, plus a fragment of a catechism./

Conzemius, Edward. The Jicaques of Honduras. IJAL 2.163–170 (1923). /Consists mainly of a vocabulary./

Von Hagen, V. Wolfgang. The Jicaque (Torrupan) Indians of Honduras. Museum of the American Indian, Heye Foundation, Indian Notes and Monographs, no. 53 (1943). /Comparative remarks, pp. 73–78; discussion of early vocabularies, brief phonetic and grammatical notes, pp. 78–83; vocabulary, pp. 83–94./

V. COAHUILTECAN LANGUAGES

Swanton, John R. Linguistic position of the tribes of Southern Texas and Northeastern Mexico. AA 17.17–40 (1915).

Swanton, John R. Linguistic material from the tribes of Southern Texas and Northeastern Mexico. BAE-B 127 (1940). /Brings together all available material on all Coahuiltecan languages except Tonkawa./

7. TONKAWA

Gatschet, A. S. Zwölf Sprachen aus dem Südwesten Nordamerikas. Weimar, 1876. /Grammatical notes, pp. 72–76; sentences, pp. 89–91, 93–94; vocabulary, pp. 99–115./

Gatschet, A. S. Remarks upon the Tonkawa language. APS-P 16. 318–327 (1876). /Grammatical notes./

Gatschet, A. S. Die Sprache der Tonkawas. ZfE 9.64–73 (1877). /Grammatical notes./

Hoijer, Harry. Tonkawa, an Indian language of Texas. Handbook of American Indian Languages, Part 3, pp. 1–148 (1933). /Grammar./ Published again in condensed and revised form, VFPA 6.289–311 (1946).

Hoijer, Harry. An analytical dictionary of the Tonkawa language. UCPL 5.1–174 (1949). /Tonkawa-English./

Hoijer, Harry. Tonkawa syntactic suffixes and anaphoric particles. SJA 4.37–55 (1949).

Unpublished materials: Harry Hoijer.

8. COAHUILTECAN

8.1. COAHUILTECO

García, Bartolomé. Manual para administrar los santos sacramentos. México, 1760. /Christian texts in Coahuilteco. Material extracted from this was printed in Francisco Pimentel, Cuadro descriptivo y comparativo de las lenguas indígenas de México (México, 1875), vol. 2, pp. 75–89; more extensive material from the same source is in Swanton, 1940 (above)./

8.2. COTONAME

The only materials available are in Swanton, 1940 (above).

8.3. COMECRUDO

Uhde, Adolph. Die Länder am untern Rio Bravo del Norte. Heidelberg, 1861. /Vocabulary, pp. 185–186./

9. KARANKAWA

Gatschet, Albert S. The Karankawa Indians, the coast people of Texas. Peabody Museum, Archaeological and Ethnological Papers, 1.65–167 (1891). /Grammatical notes and vocabulary, pp. 137–162./

Villiers du Terrage, Marc, and Rivet, P. Les indiens du Texas et les expéditions françaises de 1720 et 1721 à la 'Baie Saint-Bernard.' JSAP 11.403–442 (1919). /Vocabulary and comparative notes, pp. 428–442./

VI. NAOLAN[8]

Weitlaner, Roberto J. Un idioma desconocido del norte de México. ICA-P, 28th session, pp. 205–227 (1947). /43 utterances from a virtually extinct language of San Juan de Naolan, Tamaulipas. The author compares it with Pame, with Coahuiltecan, and with Uto-Aztecan, and finds the last-named comparison most fruitful./

UNIVERSITY OF CALIFORNIA, BERKELEY

[8] Naolan, which was unknown to Sapir, is listed at this point because of my belief (in spite of Weitlaner's conclusions) that Naolan is related to the Hokan-Coahuiltecan languages. It is possible that Naolan is to be identified with Janambre or Tamaulipec, virtually unknown languages of the area which have been considered Hokan-Coahuiltecan by some writers.

A Note on Eliciting Techniques

John Yegerlehner

Recently I spent a month collecting linguistic materials among the Shawnee Indians of Oklahoma.[1] Some of the eliciting techniques which I used parallel or are similar to techniques described by Alfred S. Hayes in a recent account of field procedures while working with Diegueño.[2] Since there may be some interest in comparison, a brief outline is here given of Shawnee materials collected and eliciting methods employed. No reference is made to analysis of materials. A projected undertaking is the description of Shawnee syntax.

All Shawnee utterances made by informants during eliciting sessions were tape-recorded. The bulk of the materials falls into two categories: (1) series of 'sentence-length' utterances, each succeeding utterance having no necessary connection with the one that came before it; (2) series of textlets ranging from two to five minutes in length.

The materials included under (1) were obtained by presenting series of non-verbal stimuli to the informant for comment. This was done in preference to having the informant perform long series of transutterances from English to Shawnee. The eliciting materials were constructed with the expectation of obtaining large numbers of short, slightly differing utterances. This method probably does not guarantee a range of related contrastive forms as wide as that obtainable through straight paradigmatic eliciting. On the other hand certain disadvantages of paradigmatic eliciting—the dangers of obtaining false analogies and 'literal' translations—were avoided. In addition, the frame within which contrastive forms might occur was widened to a certain extent.

[1] A grant received from Indiana University made possible this research.

[2] IJAL 20.185–194 (1954).

The informant was first presented with a series of pictures designed especially for use in eliciting linguistic materials.[3] There were fifty of these, simple line drawings depicting easily recognizable situations. The procedure was to present the pictures one at a time to the informant, who was instructed at the beginning of the session to say anything she pleased about any of the pictures. Responses usually did not exceed five or six words per picture.

These pictures did not provide as many short utterances as I wished to have. However, taking a lead from the pictures I then worked out some devices which would probably obtain similar results. I moved from two- to three-dimensional representation in attempting to get short utterances which would be concerned with spatial relationships, direction, and motion. I used various three dimensional objects to represent, among other things, houses, animals, and people. Typical was an exercise in which a large cardboard box was said to represent a house and some small object which I could hold in my hand was said to represent a bird. Movement of the object held was said to symbolize flight of the bird. I had previous to the eliciting session sketched out some fifty motions and positions of bird relative to house. As each one of these was presented to the informant she was to describe it. The responses were of course quite short.

This sort of three-dimensional representation seemed to lead quite logically to eliciting involving representation of a situation by means of actual acting-out. I ran through a series of some thirty performances, examples of which are the following: staring out of a window, limping, looking for something under a chair. I tried to avoid as nearly as possible cul-

[3] These were mimeographed copies of the pictures described in some detail by Alfred S. Hayes, Field Procedures While Working with Diegueño, IJAL 20.185–194 (1954). The pictures were prepared under Hayes' direction.

turally defined gestures. Two of the informants gave responses of the type desired; they commented or asked questions: 'What are you looking at? What are you looking for? Are you sick?' etc. One informant merely described the actions.

I then moved back to two-dimensional representation with a second series of pictures, which I myself had drawn. Some of these pictures were presented singly, some lined up side by side in groups of two or three. When two or three pictures were presented simultaneously these were said to represent a sequence of events. Each picture or group of pictures was matched by another in the series which was similar except for a few salient details. For example, one picture shows two men facing forward; the man on the left has on a green shirt and is filling a pipe with tobacco; the man on the right has on a brown shirt and is smoking a pipe. The mate to this picture shows the same two men; this time the man on the left is filling his pipe and the man on the right is eating a slice of watermelon. I checked on my own verbal responses to these two pictures as if I were an informant for English: (1a) the man in the green shirt is filling a pipe, (1b) and the man in the brown shirt is smóking a pipe; (2a) the man in the green shirt is filling a pípe, (2b) and the man in the brown shirt is eating wátermelon. Note that in English the placement of the primary stress is different in (1a) and in (2a). I did not expect to get comparable differences of stress patterns in Shawnee, but there seemed a possibility of obtaining very similar Shawnee sequences the differences between which might be something of the magnitude of the differences in stress pattern noted in the two English utterances cited. I found that one needs no particular skill in order to depict situations which informants would identify. However it was a time-consuming activity, and I had to abandon the project without exploiting even the possibilities of variation implicit in just a very few simple situations.

After trying out these techniques I turned to another sort of eliciting—that in which there is a minimum of direction on the part of the investigator, who merely supplies the informant with barest outlines of a number of situations and activities in hopes that the informant may thus be reminded of and stimulated to report on some personal experience or sphere of competence. Previous to eliciting I noted down some 200 or 250 such situations and activities. Typically I would begin an eliciting session by asking 'Have you ever done such-and-such?' or 'Do you know how to do such-and-such?' The informant's positive response usually consisted of a brief resumé of an incident or activity. I would allow her to talk freely for a few minutes, interjecting occasional questions. At what I hoped was an appropriate moment I would bring the resumé to a close by saying, 'Tell me about this in Indian' and thereupon starting the recorder. Of course, not every question which I asked led to a textlet. I did not attempt to follow the list very closely, usually departing from it altogether in the course of an eliciting session. Often enough the informant as she was relating one experience would be reminded of others. I would always attempt to follow these through.

These materials in some measure supplement an extensive Shawnee corpus obtained several years ago by C. F. Voegelin.[4] The earlier corpus was collected prior to the availability of magnetic recording. Obtaining texts involved allowing the informant to speak as rapidly as was consistent with the demands of writing down forms. (Forms were at least twice heard, once when initially transcribed, again when translated later on.) Texts fall under three headings:

[4] I was introduced by Dr. Voegelin to this corpus in 1953 and experimented with applying operations of multiple stage translation to some of the texts.

(1) descriptions of artifacts; (2) personal anecdotes; (3) folklore. There are more materials under (3) than under (1) or (2). In contrast, the corpus which I obtained includes only two or three folktales; the materials consist otherwise of samplings of the everyday speech of Shawnee informants. Also in contrast to the earlier corpus, the later corpus, as was mentioned above, constitutes a one-hundred per cent sample of tape-recorded materials. Everything that is transcribed is also on tape. On the other hand, of the speech sample preserved on forty-five reels of tape, not over ten per cent was transcribed in the field. There was no need to attempt tentative, in-the-field descriptions of phonemes and morphemes since phonology and morphology have been worked out by Voegelin to a much greater degree than I could hope to exceed in a field period of one month.

INDIANA UNIVERSITY

THE USE OF VERNACULAR LANGUAGES IN EDUCATION, Monographs on Fundamental Education, Unesco, Paris, 1953, pp. 154.

WILLIAM E. BULL

The present monograph approaches the ponderous problems of providing the speakers of all the vernacular languages of the world with a modern education by establishing as axiomatic three operational assumptions: first, 'that every child of school age should attend school,' second, 'that every illiterate should be made literate,' and, third, 'that the best medium for teaching is the mother tongue of the pupil.' Between these propositions and their realization many complex and difficult problems are bound to arise and it is primarily, though not exclusively, with the linguistic and educational aspects of these problems that this volume is concerned.

The monograph begins with a brief introduction (pp. 8–15, aimed at the layman) which defines the nature of language, describes the three systems of writing, discusses the study of language, and attempts to define, in terms of political, linguistic, socio-cultural, and economic factors, the role of language in general education. Chapter I (pp. 16–44) is a continental survey (Africa, the American continents, Asia and the Pacific, Europe—including the USSR) which enumerates or classifies the known languages of each region and reports in considerable detail on their use in both public and private schools. Chapter II (pp. 45–75), the core of the volume, contains the report of the Unesco meeting of specialists (1951), that is, a statement of policy, a definition of problems, and a number of recommendations aimed at improving education and suggesting further Unesco action (to be discussed below). Chapter III (pp. 76–138) provides an excellent and informative series of case histories which have been selected to illustrate both the problems of education in the vernacular[1] and some of the major attempts at their resolution. The topics discussed are: The Tarascan project in Mexico; the renovation of Arabic; developing a national language in Indonesia; the problem of 'pidgin' in the Trust Territory of New Guinea; the unification of the Akan dialects of the Gold Coast; the Iloilo experiment (Philippines) in education through the vernacular, and the Finno-Ugrian experiment (primarily vocabulary expansion). There follows a tentative classification of the languages spoken in the world today (Appendix I, pp. 139–43), the resolution and instructions for the Unesco meeting of specialists, with a list of the persons attending (Appendix II, pp. 144–45), and a short bibliography (pp. 146–49).

The survey of the world language situa-

[1] 'A language which is the mother tongue of a group which is socially or politically dominated by another group speaking a different language. We do not consider the language of a minority in one country as a vernacular if it is an official language in another country.' (p. 46)

tion, presented in Chapter I, indicates that no one knows, not even vaguely, how many languages and dialects there are in the world, that only a small proportion of the known languages are actually used in formal education, and, as a partial result, that over one-half of the world's population is illiterate and vast numbers of children are forced, by circumstance, to do all or most of their formal learning in a foreign language. To achieve, as a consequence, simply the elimination of illiteracy in the world involves problems of staggering proportions. The majority of the languages of the world have no written form, a great many more lack a literature of sufficient stature to justify learning to read, and only a minority have textbooks which are adequate either for elementary school classes or adult literacy courses. To provide further, under these conditions, even a grammar school education for all children is, in all probability, a practical impossibility within the present century.

The Unesco committee's major reaction to this formidable situation and the central thesis of the volume is the proposition that every pupil should begin his formal education in his mother tongue and should continue to be taught in that language as long as the language and the supply of books and materials permit. It is asserted, in support of this thesis, that there is nothing in the structure of any language which precludes it from becoming a vehicle of modern civilization, that no language is inadequate to meet the needs of the child's first months in school, and that full self-expression can best be attained in the mother tongue. It is recognized, however, that a great many languages, probably the majority in the world, do not have a vocabulary adequate to the needs of higher and, especially, technical education. Two solutions to this problem are suggested: first, the mother tongue may be used as a bridge to learning an adequate language and, thereafter, education may be carried on in this second vehicle; second, planned expansions of the vocabulary can be undertaken, as in Arabic (pp. 87–95), Hungarian, Finnish, and Estonian (pp. 132–138). It is maintained, nevertheless, that if a child's mother tongue is not the official language of his country, or is not a world language,[2] he needs to learn a second language. In other words, within the frame-work of these recommendations, a child in the Cebu province of the Philippines would, theoretically, begin his education in Cebuano. This vernacular would, then, serve as a bridge to Tagalog (the official national language) and, ultimately, either of these languages, or both, might be used to teach him English or Spanish. The child, according to this plan, would, of course, first learn to read in Cebuano and would continue to get as much of his education as possible in this language. In short, he begins his education in Cebuano because he will have fewer adjustmental problems in starting school, because it is easier on him psychologically, and because he learns more rapidly and operates more efficiently in his mother tongue; he learns Tagalog simply because he needs it as a member of the state, and, finally, he must learn a world language in order to have access to knowledge not available in either Cebuano or Tagalog.

It is inevitable that the product of such an educational sequence will exhibit a mild kind of linguistic schizophrenia. He may, for example, find it easier to make love in Cebuano, discuss politics in Tagalog, and do research on thermonuclear weapons in English. In order to reduce or eliminate this confusion the Committee recommends that the mother tongue be used as the medium of instruction as far up the education ladder as possible (through college if the language is adequate), that authorities should do everything in their power to create the conditions which will make for an ever-increasing extension of schooling in

[2] 'A language used over wide areas of the world.' (p. 46)

the mother tongue, and that efforts should be made to persuade an unwilling public to accept education through the mother tongue.

The Committee, rather obviously, strongly believes that what is best for the child psychologically and pedagogically should be the prime point of departure in planning for universal education. This proposition appears, however, to be somewhat unrealistic. What is best for the child psychologically and pedagogically may not be what is best for the adult socially, economically or politically and, what is even more significant, what is best for both the child and the adult may not be best or even possible for the society which, through its collective efforts, provides the individual with the advantages he cannot personally attain. It would seem appropriate, as a consequence, to contemplate the fact that while getting educated is a personal matter, in contrast, providing a modern education is a social enterprize. It might, likewise, be appropriate to face the somewhat disagreeable fact that most modern states have reached their present structure through conquest, that is, in terms of the immediate problem, through the forcible integration of heterogeneous linguistic communities into a single political and economic unit. There are, consequently, at least 369 languages in the British African Territories, about 200 different Bantu languages in the Belgian Congo, approximately 558 languages in South America, some 200 different languages in Indonesia, and about 100 main languages in Russia. Finally, it might be wise to inquire whether or not the number of existing languages is compatible with the aims, desires, and, ultimately, the exigencies of the modern world. It may be pleasant for both the linguist and the anthropologist to envisage a world which permits the preservation of museum cultures and a multitude of languages, it may be profoundly distasteful to abandon the principle of linguistic self-determination, but it is apparent that the vast enterprizes required to provide a modern education and to sustain a modern state cannot be carried out in excessively polyglot societies. Mexico, for example, which does not have an adequate school system even for its Spanish-speaking inhabitants, can hardly afford to support 49 more projects patterned on the Tarascan experiment (pp. 77–86). Modern Indonesia can scarcely hope to survive as a politico-economic unit without a national language (pp. 95–103), a lingua franca which will bridge the chasm between some 200 languages and dialects and make universal education an economic feasibility. It may be possible to transform Malay, the lingua franca of Indonesia, into a world language and it may be theoretically possible to convert every Indonesian language into a medium of higher education but it is surely Utopianism to hope that Indonesia can endow every speech community with a complete vernacular school system and with vernacular libraries capable of competing educationally with the great installations of the primarily monolingual nations. As a consequence, it would seem that the speakers of many vernacular languages are doomed to a kind of intellectual colonialism which can be mitigated only by some type of linguistic integration with larger speech communities and ultimately with a community whose language and resources are adequate for education in every field of human endeavor.

It would seem, in view of the foregoing discussion, that some practical compromise must be made between what is immediately best for the individual and what, in the long perspective of history, is best for the individual, his children, and his community. It would seem, furthermore, that neither the world nor any country or many individuals will eventually profit by encouraging the perpetuation of hundreds of miniature vernaculars. In place of planned heterogeneity, it would seem wise to encourage planned homogeneity. In place of

more education in more vernaculars, it would seem more practical to formulate a long-range educational program aimed at a gradual reduction in the number of languages and dialects in every area of the world. Such a program would, of course, kindle some patriotic and related emotional protests (see the case of Akan dialects of the Gold Coast, pp. 115–123), but it would not, in practice, be in violent conflict with the current evolutionary process, namely, a strong tendency for the mortality rate of languages and dialects to exceed their birth rate. The actual implementation of such a program would, nevertheless, for very practical and substantial economic, nationalistic, and linguistic reasons, lead directly to some increase in education in the vernacular. It may be assumed, in view of the existing number of languages, that linguistic homogeneity is attainable in any immediate future only on a regional or national basis. This presumes, in the case of many countries and areas of the world, that some local vernacular will become the dominant language and that it will need to be converted into an adequate vehicle for modern education at all levels of schooling. This duplicates, rather obviously, in the realm of conscious planning, the actual history of the rise of all the major European languages. The problem, then, is to accomplish by programing and in a few generations what happened in many countries during a millenium or more of natural evolution. This, as the case histories and the continental survey presented by the Committee demonstrate, is a tremendous task which, if phonetics and phonemics are left to evolve naturally, may be considered under three main headings: the writing system, vocabulary, and grammar.

It is apparent, as the Committee points out, that the writing system of a number of languages does not lend itself readily to the exigencies of the modern world and, especially, to the use of typewriters and typesetting machines which are essential to the rapid and economical reproduction of educational materials. The Committee, therefore, makes a number of firm and unanimous recommendations (pp. 60–62). To encourage literacy, polyglot areas might adopt a uniform system of writing for all languages used. To make learning and reading simpler, spelling should be standardized in conformity with contemporary pronunciation and the phonemic system. To increase and simplify the reproduction of texts, the system should use a limited set of symbols written in a single line, and diacritics, if equally satisfactory, should be avoided. If a language lacks symbols, digraphs should, if possible, be used in preference to new characters and, if new characters are needed, they should be derived from prevailing scientific usage.

The major problem in most vernaculars is the lack of an adequate vocabulary and, as a direct consequence, the present impossibility of providing either an adequate library of texts or actual instruction in the language. In Egypt, for example, the creation by the Royal Academy of some 10,000 technical terms has not brought Arabic to the level necessary for adequate instruction in pure science and medicine. These subjects are taught, in the higher classes, in English (p. 92). The vocabulary problem in Malay is even more pressing. The Indonesian Language Commission has fixed some 14,000 technical terms but this has not been sufficient to eliminate errors and misunderstandings even in such fundamental matters as economics and law. In addition, because of the lack of a staff which can handle technical problems in Malay, many courses on the university level are still conducted in Dutch.

The vocabulary problem in the vernaculars is, in the opinion of the Committee, a matter of sufficient gravity to justify further Unesco action and it has been recommended that this body 'investigate the possibility of co-ordinating scientific and technical terminology in world lan-

guages so as to help the developing languages to create their own terminology as far as possible in conformity with the terminology in world languages.' (p. 70) The Committee is not unanimous concerning practical recommendations and it spends some time debating the irrelevant question of whether or not a language has a vocabulary adequate for the expression of objects and beliefs which are of importance to its speakers. The majority opinion holds that all languages have enough words for this purpose, but the question is surely academic since it can have meaning only in terms of a closed society which is neither evolving nor accepting influences from other cultures. Moreover, to establish importance to an entire society as the criterion for judging linguistic adequacy is to deny every exploring mind the opportunity to develop the social significance of the unknown. No language is adequate if one of its speakers finds the frontiers of knowledge blocked by linguistic barriers and this, as the monograph amply demonstrates, is the characteristic state of all vernaculars. The Committee, in a sense, rejects this fact with one hand and offers a remedy with the other. Its proposals, which are not unanimous, lose some of their directness through failure to stress the fact that a vocabulary can be expanded or extended in only five different fashions: by word borrowing, by coinage, by giving new meanings to existing words, by extending the meaning of existing words, or by compounding new words from existing material taken either from the language or from it and some other tongue. With these and no other alternatives available the problem (aside from questions of phonetics, phonemics, and morphemics) cannot be meaningfully discussed without specifying the subject of discourse—a matter not considered by the committee. The terminology, for example, of political science might, quite readily, be created from the existing fund of words, roots, etc. The vocabulary of a complete pharmacopoeia could hardly be duplicated except by coinage and borrowing, the actual process by which this vocabulary was created, for example, in English. The Committee's recommendations deal with the vocabulary problem in larger generalizations. It is suggested that the vernacular be adapted as much as possible, that coinage be avoided when other means are available, that new words not be added until they are needed, that consistency in the type of formation and language of origin be maintained in borrowing scientific terms, that borrowed words be adapted to the phonemic structure and grammar of the language, and, finally, that new words be tried out to test their acceptability before they are officially adopted.

The problems of grammatical structure and of syntax (rather strangely not discussed in the monograph) have only two alternative solutions. The language can be left alone or some attempt can be made to 'improve' it. The basic question is, of course, improvement in terms of what criteria? The Committee makes no serious study of this matter and limits itself, in the majority report, to the recommendation that the language of a homogeneous speech community be left alone and that, in the case of a multilingual society, it may be useful to attempt some reconstruction of the language selected for education. Only two changes are suggested: the abolishment of irregularities and the addition of 'new useful categories in order to make it (the language) a better vehicle of modern thought.' (p. 67) The Committee does not exemplify the last suggestion nor does it attempt to define 'useful'. The whole matter, quite obviously, needs further study.

The Committee also makes a number of sound recommendations concerning general educational matters. It suggests that actual instruction in multilingual classes be delayed until all the pupils have been taught the classroom language, that adult illiter-

ates be taught to read first in their own tongue, that a supply of reading material adequate to forestall frustration be made available before teaching people how to read, that second languages be introduced orally on the elementary level, that the amount of a second language given be increased gradually, that efficient modern techniques (not described) should be used, that a uniform system of writing be adopted in multilingual countries, that the writing system be altered to meet the requirements of printing, and that in a polyglot state, which is developing a national language, the materials for teaching the language should be simplified for instructional purposes so that pupils may progress toward full mastery without anything to unlearn. In addition, the Committee calls attention to a fact of which most American institutions of higher learning seem to be woefully ignorant, to wit, 'a teacher is not adequately qualified to teach a language merely because it is his mother tongue.' (p. 61)

The major and final recommendations of the Committee, that is, those which call for further Unesco action, do not seem to be the product of a logical progression from the description of an enormously complex problem to a potential solution. The Committee affirms, in its first recommendation, that 'the main obstacle to the use of vernacular languages is shortage of educational materials' and not the apparent fact that there are literally hundreds of languages which cannot at present carry the burden of a modern education beyond the lower elementary grades. The teachers who are to be trained to teach in these languages will, rather certainly, have to be educated in some other language and they will either stand before their classes half tongue-tied by linguistic deficiencies or they will abandon their superior knowledge in the process of accommodating themselves to the limitions of the language of their students. More paper, type, presses, and, hence, books do not, as a consequence, seem to be the prime solution except, perhaps, in those vernaculars which are on the verge of becoming major or national languages. The recommendation that the scientific and technical terminology of the world languages be co-ordinated to facilitate borrowing stems directly from the known facts and may be considered excellent. The suggestion that Unesco investigate the possibility of promoting the exchange and extension of copyrights is important but meaningful only in terms of the countries whose vernacular is adequate for translation. The last two recommendations deal with student exchanges and are directed at developing an adequate staff in younger countries. It is suggested, first, that Unesco press 'for having the certificates of educational achievement granted by these countries accepted in the countries to which students normally go,' and second, that 'within Unesco's Exchange of Persons Programme some priority should be given to training in linguistic and in second language teaching.' (p. 70)

It is important to stress, in conclusion, that the strictures which this reviewer has placed upon the recommendations of the Unesco committee stem directly from an unwillingness to accept completely both the implicit and explicit operational assumptions of the Committee. The Committee is implicitly committed to a frame of reference which produces a formulation of most problems in terms of the individual. It supports, consequently, the Wilsonian principle of linguistic self-determination and maintains that what is immediately best for the individual should determine the major features of its program. It would seem, however, first, that linguistic self-determination conceived in the face of a potential of two or three thousand languages and dialects is hopelessly unattainable when expressed in terms of the economics of a modern education, and, second, that too much stress on the immediate benefits for the individual en-

dangers the elaboration of a long-range program compatible with the needs and the potentials of modern society.

UNIVERSITY OF CALIFORNIA, LOS ANGELES

THE CATEGORY OF PERSON IN LANGUAGE. By Paul Forchheimer. Berlin: de Gruyter and Company, 1953.

DELL H. HYMES

This book has two major parts, a general discussion of the category of person, and a classification of person-marking systems. It has also a note on the distribution of person-marking systems, 'speculative remarks on the origin of some first personal pronouns' and a remarkable preface by Bonfante. The whole is presented as a contribution to general linguistics, citing a call for such research by Vendryes (1): 'Independamment de toute parenté, on observe, entre les langues très diverse de temps et de lieux, certains traits communs . . . En réunissant le plus grand nombre possible de ces traits communs, on devrait arriver à etablir une sorte de grammaire generale. . .'

Forchheimer chooses to focus on the category of person, as related to that of number. He gives as reasons, that person is apparently universal, and number nearly so; that number seems more intimately connected with person, logically and historically, than gender or case; that the two are easily isolated and compared; and that a large widespread sample is relatively easy to obtain. Some 500 grammars and word lists have been examined, the forms arranged in uniform tables, a classification made of basic types, and conclusions reached both as to specific historical developments and general linguistic theory. In general, the author states (11): 'It is the purpose of this book to describe the person systems as found in language, and, as far as possible, to work out their likely origin and cause, based purely on linguistic considerations. The results, no doubt, need interpretation by psychologists and anthropologists. It cannot be the purpose to force linguistic data into preconceived schemes, but rather to try to reveal manifestations of the human mind and connexions on which psychological and anthropological theories can safely be based.'

We will consider the results in terms of (1) the data itself, (2) the classification of the data, and (3) the attempts to discern historical developments and general origins.

Simply an accurate compilation from so many languages would be of value; it is of course indispensable to the author's further aims. On this score, however, the whole undertaking suffers from inaccuracies. Whether fault lies with printer, author, or both, a check of most of the pronominal systems presented from American Indian languages found not one reproduced with complete accuracy (Maidu, Yuma, Tonkawa, Tunica, Tlingit, Coos, Siuslawan, Chinook, Yokuts). Errors such as switching subjective and objective sets in Maidu, omitting the Yuman first person singular prefix, citing Tlingit second person plural as second person singular on one page (78), yet giving the correct form elsewhere (137), seem to reflect carelessness on the author's part in research or reading proof. While the errors may little affect the place of the systems in the classification, their frequency in this small sample renders the remainder of the data suspect. More essential to Forchheimer's aims, the errors cast doubt on his reconstructions and general conclusions. Tonkawa, for example, appears as the only language in the book without a second person singular form; the author (or printer) has overlooked the raised dot in the source indicating it is marked by length. The mistaking of barred l (ɬ) for plain l in Coos and Siuslaw leads to identification with an actual l in Chinookan, and unwarranted conclusions as to the origin of the inclusive plural in Penutian

(110). Verbal references to unreproduced data are also suspect, since Zuni is cited as a case of dual limited to nouns (17), and also of dual in nouns and the first person of pronouns (19). The two statements are contradictory, and neither is correct; Zuni marks dual in all three persons.

The orthographies represented are widely variant, but phonetic values are not given. Symbols are randomly modernized: E, the schwa in earlier Americanist usage, is sometimes reproduced as such, sometimes modernized to ə, and at least once mistaken for e.

Sometimes the author's own theories lead him astray in presenting data. Of Tunica pronominal affixes, only the third masculine formally distinguishes dual and plural. In the first, second masculine and feminine, and third feminine, the nonsingular is marked like the third masculine dual by the singular form plus -n. Because -n so clearly marks dual here and in other paradigmatic sets, Haas classes these nonsingular prefixes as duals (which may function as plurals with plural verbs). Forchheimer is aware that -n marks dual, yet, having postulated in advance that the plural is always fundamental and the dual derived, he reclassifies the forms with -n (aside from the third masculine) as 'neutral plurals', ignoring the formal pattern.

The choice of sources can be disconcerting. Algonquian is represented only from Bishop Baraga's 1878 grammar, good for its day perhaps, but hardly on a par with Bloomfield's Central Algonquian work (noted by Forchheimer), Hockett's Pottawattomi, or Voegelin's Delaware. Indeed, the Menomini and Cree systems might have been taken easily from pp. 256–257 of Bloomfield's Language (along with Samoan and Annatom Island, not cited by Forchheimer). Eskimo is taken from Thalbitzer, rather than from any of Swadesh's numerous publications on it. The best grammar in the Part 2 of the Handbook of American Indian Languages, Takelma, is omitted, while the others are used; from Part 3, only Tonkawa is cited, neglecting Yuchi, Zuni, Coeur d'Alene and Quileute.

The command of relevant information, for Americanist problems at least, seems incomplete. Athapaskan is equated with Na-Dene (136) and written of as including Tlingit and Haida. Yuchi is discussed as apparently a Salish dialect, and there follows this statement (120): 'While both Kwakiutl and Yuchi could have developed organically from the originally numberless pattern of Mosanic, it must be considered that Yuchi is an isolated dialect, surrounded by Penuti languages and Hoka.'

When faced with a language that has more than one set of person-markers, Forchheimer's criterion is 'to select those sets of pronouns that best show the pattern.' That is, he selects the set or sets that have the largest number of distinctions. He seems to assume that sets with less distinctions reflect wearing-down and coalescence, but he does not consider the possibility that sets with more distinctions represent innovations (24–25). Comparison of the marking of person in all form-classes might reveal something of significance, so also the comparison of sets occurring with the same form-class. An example is the relation of subject, direct object and indirect object in the verb, utilized typologically by Milewski (La structure de la phrase dans les langues indigènes d l'Amérique du Nord, Poznan, 1950), and Sapir (IJAL 1.82–86, 1917). Little of this can be determined from Forchheimer's data.

Often enough Forchheimer seems not to report the status of the third person, or simply refers to it as 'demonstratives'. In at least one case (Siuslaw), the demonstrative origin of the third person marker seems to have led Forchheimer not to report it. In general he omits the varied and sometimes rich development of third person distinctions in many languages. Since he concludes 'There is no room, in our definition, for a fourth person' (22), an integral

feature of the pronominal systems of Athapaskan, Kutenai, Sahaptin, Wasco, Yana, Eskimo and other languages is likewise not represented.

It might be argued that 'the category of person in language' can be classified and analyzed accurately only on the basis of all the facts about the marking of person in each language. A priori conclusions as to what is logically fundamental, and as to origins, lead Forchheimer to ignore other than the simple three persons, and number. Perhaps his essentially visual method of classification, and inspectional method of analysis, could not cope with this full range of complexity, but there are statistical methods which could. Whatever interest the book may have, then, it is neither reliable nor complete as a source of data.

There are seventeen groups in Forchheimer's classification, distributed among nine major types. We summarize the classification here. (Read: Lgs = languages; Pl = plural; Du = dual; Pro = pronouns; N = nouns; 1, 2, 3 = 1st, 2nd, 3rd persons; incl., excl., = inclusive, exclusive; Per = person).

1. Lgs with morphological Pl of Pro: (a) Lgs without formal Pl of N or with optional Pl only; (b) Lgs with formal Pl of N; (c) Lgs with different Pl for N and Pr.

2. Lgs without morphological but with lexical Pl, at least in 1: (a) Lgs without formal Pl, having lexical Pl in 1 only; (b) Lgs with lexical Pl for 1, morphological Pl for other P; (c) Lgs with lexical Pl in 1, 2 and lexical or morphological Pl in 3; (d) Lgs with two lexical Pl of 1.

3. Lgs with lexical and morphological Pl in 1: (a) Lgs with lexical Pl restricted to inclusive Du or limited incl. Pl; (b) Lgs with lexical incl. Pl and morphological excl. Pl.

4. Lgs with morphological or lexical and composite Pl of 1: (a) (no subhead); (b) Lgs with morphological Pl for incl. and composite for excl. 1 Pl; (c) Lgs with lexical Pl and composite forms.

5. Lgs with two composite forms for incl. and excl. Pl of 1.

6. Lgs with variants of one form for incl. and excl. Pl.

7. Lgs with variants of 2 Pl for incl. 1 Pl.

8. Lgs with complete set of Pro plus composite forms.

9. Lgs with less than three distinct Pl forms.

By 'morphological' is meant a plural form analyzed as containing the singular form of the same person plus a plural element; by 'lexical' is meant a plural form containing no element found elsewhere in the person-marker system; by 'composite' is meant a plural form containing a single first person element (singular or plural) plus another element, either second or third person, or unanalyzable within the person-marker system. Types 4 and 5, as well as 6, 7 and 2d are concerned with the makeup of the first person inclusive and exclusive plurals.

The presentation of the systems according to the classification occupies more than two-thirds of the book. Examination shows that the classification focuses, not upon the distinctions marked, but upon the etymological relationships of the forms. For the bulk of the classification, types 1–5, essentially it is only the makeup of the first person plural that is considered. (The subdividing of type 1 according to etymological connection of pronoun and noun plurals is dropped for the other types.)

The historical, rather than synchronic, purpose of the classification becomes explicit for types 6–9, whose fit into types 1–5 is ignored in favor of special etymological relationships, real or supposed, outside the first person plural. Even so, type 9a seems more reasonably to go with type 6, where the second person plural is also a factor, and type 9b, where second and third person plurals are linked, goes with the forms cited for Kiowa under type 7. Within type 6, Otomi is type 4 in basic scheme. Even etymologically, Otomi seems quite

analagous to the Algonquian data Forchheimer puts into type 4. In Otomi the first person inclusive plural and second person plural share their second element, while the first person inclusive and exclusive plural share their first element; in the cited Algonquian data the first person inclusive plural and second person plural share their first element, while the first person inclusive and exclusive plural share their second element. The structural connections are the same except for the position of the elements (first or second) which manifest them. Moreover, Yokuts, thrown into type 7, has clear morphemic contrasts, not 'variants', and should follow Otomi into type 4; here the first person exclusive plural and second person plural share their second element, while the first person inclusive plural and the second person plural share their first element. Finally, Mundari, cited as type 5, is clearly type 2d.

Enough has been said to show the classification is not consistent in its own terms, due largely to the historical concern that runs through it and the accompanying commentary. It is also not complete. Tonkawa, we noted, was the only language utilized from Part 3 of the Handbook of American Indian Languages. Quileute would fit type 2c, and Zuni, referred to contradictorily and incorrectly, still would fit type 1c. Yuchi, however, would require at best a new subdivision of type 4, having a separate lexical element in first person inclusive plural, and this preceded by an independent element in first person exclusive plural; the latter is thus 'morphological' in respect to the former, or a special form of 'composite' not recognized by Forchheimer. In Coeur d'Alene, passed over with the remark that it 'shows regular pluralization' (120), the singular is actually 'morphological' in respect to the plural (čin-, č-), a relationship unforeseen in the classification.

Takelma, the only language from Part 2 of the Handbook not included, would fit under type 2, and the four schemes of pronominal possession fit subtype b; but the independent pronouns would require a new subtype (first and third person plurals 'lexical', second person plural 'morphological'). In the tense-mode system of the verb, five tense-modes are characterized by separate sets of pronominal endings, and of these, the aorist and future have 'lexical' first person plurals, the inferential a 'morphological' first person plural. The aorist and future are the same new subtype as the independent pronouns, while the inferential is a new subtype again, having 'morphological' plurals for first and second person, 'lexical' plural for third person. One can well imagine the difficulty Forchheimer would have had deciding which 'best shows the system'. Finally, Zoque can be seen as having a first person base -ʌh, with singular and plural marked by ʔ- and t-, respectively. Though Wonderly does not carry the analysis this far, Forchheimer habitually does this sort of thing with the languages in his sample; in this case the result would be another type of relationship not envisaged in the book.

Forchheimer makes observations and conclusions about pronominal features in general, and utilizes them in his commentary on the systems in the classification. Yet, as noted, he switches in his classification from features of content to etymological relationships; and he does not undertake the simple task of enumerating for the languages in his sample the occurrence of the features discussed. For what it is worth, considering the unreliability of those forms checked against sources, here is a tabulation of formal distinctions for the 83 languages whose systems Forchheimer reproduces. (The third person is of course slighted, as we have seen.)

1st sg: 81, plus one masculine-feminine contrast, one inclusive-exclusive contrast (Rotuman); total, 83 languages.

2nd sg: 75, plus six masculine-feminine

contrasts; no number distinction in second person, one; total, 83 languages.

3rd sg: 56, plus eleven masculine-feminine contrasts, four masculine-feminine-neuter contrasts, one animate-inanimate contrast; no number distinction, six; total, 78 languages.

1st pl: 44, plus one masculine-feminine contrast, 38 inclusive-exclusive contrasts; total, 83 languages.

2nd pl: 72, plus four masculine-feminine contrasts; no number distinction, one; total, 77 languages.

3rd pl: 62, plus three masculine-feminine contrasts, three masculine-feminine-neuter contrasts; no number distinction, six; total, 74 languages.

1st dual: 13, plus 20 inclusive-exclusive contrasts; total, 33 languages.

2nd dual: 26 languages.

3rd dual: 23 languages.

1st trial: 2 inclusive-exclusive contrasts; total, 2 languages.

2nd trial: 2 languages.

3rd trial: 1 language.

A fuller tabulation from original sources, ordered by inspection perhaps, or by cluster analysis, might well yield a useful set of basic types. Hypotheses for testing, derived from the above, might be: (1) all natural languages distinguish in the pronominal system three persons in the singular, and singular and plural in the first person; (2) natural languages may distinguish two genders in all three persons, and both singular and plural; for any person, more frequently in singular than plural, and for any number, more frequently in third than second, in second than first person; (3) natural languages may distinguish three genders (including neuter) only in the third person, and do so less frequently than two; (4) natural languages may distinguish four numbers, singular, plural, dual, trial, in order of frequency; (5) natural languages may distinguish inclusive-exclusive first person in three numbers, plural, dual, trial, in order of frequency.

Forchheimer states that 'general conclusions reached, in turn, have been important as background for individual analyses.' (4) This circularity invalidates the conclusions, for they are thus based on data which they have helped to shape. Had they been drawn from data independent of them, the conclusions would have had some value, e.g., for internal reconstruction. Or had they been formulated as hypotheses and tested on data from which they had not been derived, the result would also have been valid. One should compare Murdock's procedure in his Social Structure to appreciate the complete inadequacy of Forchheimer's.

The author, as we quoted him, promised purely linguistic considerations, no preconceived schemes or psychologizing. We have seen a good deal of preconceived schemes; as for psychologizing, he writes (18): 'the dual is no logically or psychologically necessary form' in support of his theory of its secondary origin. Projecting into the minds of native speakers, he writes (75): 'While it is hard to decide whether "we" is a plural to "I" or not, and while, therefore, many languages pluralize "I", many use another word for "we", and while some decide, as we shall see, that both can be used side by side, "you" is much less disputed a plural of "thou". . . . Now we discuss languages to whom "you" is not a plural of "thou". This is, however, much less a psychological or logical problem of the "Sprachgefühl".'

Most of the general discussion is a review by quotation of literature on the subject of person, particularly speculations as to the 'essential' nature of person categories, or the relation of person to deictic expression, subjective-objective categories, and the like. As a review, this is of some interest. Forchheimer rightly criticizes Schlauch (20) for not distinguishing a matter of formal grammar from the presence or absence of a basic concept. Unfortunately, the review and discussion are regarded as helpful to the empirical task of classification. It is hard to see the relevance of such a priori dialectics as (15): 'The real merit of the objective-subjective opposition appears

when we find that the object of the first person has moved on the subjective-objective line away from the subjective position slightly toward the objective position. It would be hard to say that "me" is less pointing and more naming than "I". As far as plural is concerned, both analyses coincide. Bühler remarked already that "we" is less pointing and more naming than "I". As "we" includes also outsiders, second or third persons, it is also more objective than "I".'

The basic error is to assume that supposedly logical relationships can be used to infer temporal relationships. The 'logical' relationships themselves are open to wide dispute; even were there unanimity, such a postulate as that dual is secondary to plural can never serve to explicate the historical development of a given language; unless, that is, it be assumed that present-day languages are within hailing distance of the primal linguistic state. It is not at all certain that Forchheimer does not assume this. He writes (121): '... there was originally a population in South-East Asia or not far from there that did distinguish exclusive and inclusive. Waves of invasions drove these tribes up into the mountains, southward into Malaya and the South Seas, and north-east into America. While the original development of exclusive-inclusive can still be seen in Sioux and Uto-Aztec, it is merely preserved as substratum ... in the Asiatic and Oceanic retreats and in many more American dialects.' The free use of substrata is indicated in such remarks as (98) 'Even where we cannot trace it, I assume such a substratum, as the spontaneous development of such forms is much less likely.'

Forchheimer mentions a debt to Father Schmidt and the Kulturkreise school. Lowie's strictures on them (History of Ethnological Theory, esp. p. 185) serve doubly for Forschheimer, and the Kulturkreise, at least, were complexes of traits. Inferring the culture history of the Americas from the distribution of the inclusive-exclusive makes about as much sense as basing it on the distribution of the hoof-rattle. Forchheimer postulates also that the dual, wherever not indigenously derived from the plural, comes from a substratum, and this 'explains duals composed with the numeral for two.' Sierra Miwok data contradict both views. The plural is derived from the dual, which is in turn based on the radical for two, so far as the first person inclusive is concerned; this is a development in situ in the Central and Southern dialects (not Northern), and no substratum to this small group of hunters and gatherers is in any way likely.

The most astonishing historical speculation is to link Tibeto-Burman with Siouan on the basis of one or two person-markers. [Siouan is also supposed to be substratum for the plural and exclusive-inclusive in Iroquoian and Algonquian (111–112).] In Forchheimer's historical phonology (142), the consonants count for very little indeed. Fortunately, we have Wolff's Comparative Siouan work to consult, especially IJAL 17.197–204 (1951). It shows the Forchheimer speculations to be quite absurd. Incidentally, Wolff reconstructs only a dual, not a plural, to the Proto-Siouan person markers. In general, Forchheimer's necessarily brief acquaintance with the many languages of his sample could hardly provide a sound basis for historical reconstruction, even apart from using a feature like inclusive-exclusive as a solo 'sprachkreise'.

Bonfante's Preface requires comment here. It pictures a world inundated by descriptive grammars, but neglecting the spiritual problems of language, and this, almost ironically, 'precisely when our linguistic methods have been perfected by G. I. Ascoli, K. J. Gilliéron, M. Bàrtolli, and so many other linguists, when Croce's philosophy has vivified theoretical speculation and saved our science from the blind alley of the neogrammarians ...' It is a world which knows 'that linguistic features of any kind ... can extend from one language or a group of languages to another without any limitation.' It is a world, apparently, unmarred by the work of most modern

American linguists. Bonfante finds application of areal linguistics even to all languages of the world together now entirely justified. He cites 'the problem of the vigesimal system which appears in the two extreme areas of Eurasia (and parts of America), but not in the central zone', and concludes that the vigesimal system is much older than the decimal and duodecimal system. This presumes such a concept as 'vigesimal system' can be taken as a single trait, and its distribution over two continents interpreted by the principle of lateral areas. A recent study of Athapaskan numeral systems shows how far from justified such presumptions are (Virginia Dosch Hymes, Athapaskan Numeral Systems, IJAL 12.26–45, 1955.)

This conclusion of Bonfante's, like many by Forchheimer, appalls one raised in the Boasian 'co-tradition' of anthropology and linguistics. Though his own caution was sometimes extreme, Boas instilled in folklore, linguistics and ethnology a critical attention to the concrete details of historical relationships within carefully defined areas. This is complemented, not superseded, by today's concern with type, structure, and pattern as well. This Boasian historical perspective and our growing familiarity with statistical criteria show random speculation and sweeping conclusions like those of Forchheimer to be at worst an obstacle, at best irrelevant, to the growth of sound knowledge about linguistic relationships, be they typological, areal or genetic.

In sum, from this book one can get some survey of the range of person-marking systems and of the theoretical literature, but little else. Perhaps so weak a book should not have been written; on the other hand, it is the only one in its field.

University of California, Los Angeles

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Elsie F. Dosch
Indiana University